Chassis and Engine Codes

Vehicle Identification Number (Canadian Model)

JHMAF533*ES800001

Model Name
- AG: 1300 2D H/B
- AH: 1500 2D H/B
- AK: 1500 4D
- AN: Wagon

Transmission Type
- 5: 5-speed
- 4: 4-speed
- 3: Hondamatic

Number of Doors
- 3: 2D H/B
- 4: 4D
- 5: 4D H/B

Grade
- 1: Basic
- 2: DX
- 3: S, GL

Check Digit

Model Year
- E: 1984

Plant
- C: Sayama Plant
- S: Suzuka Plant

Serial Number

Vehicle Identification Number (Except Canadian Model)

■JHMAAH5330S000001■

Model Name
- AF: Coupe CR-X
- AL: 1200 2D H/B
- AG: 1300 2D H/B
- AH: 1500 2D H/B
- AM: 1200 4D
- AJ: 1300 4D
- AK: 1500 4D
- AN: Shuttle 4D H/B

Transmission Type
- 5: 5-speed
- 4: 4-speed
- 3: Hondamatic

Number of Doors
- 3: 2 Door
- 4: 4 Door
- 5: 5 Door

The tailgate is counted as a door.

Grade
- 1: Basic model (Most simple version)
- 2: Standard model
- 3: High priced orders-higher than standard version (3, 4, 5, 6, 7, 8, 9, 0)

Plant
- C: Sayama Plant
- S: Suzuka Plant

Serial Number

Engine Serial Number

EW_2–1000001

Engine Type
- ZA_1 : 1200 cc
- ZA_2 : 1200 cc
- EV_2 : 1300 cc
- EW_2 : 1500 cc
- EW_3 : 1500 cc (PGM-FI)

Serial Number

Transmission Number (Manual)

GW–1000001

Transmission Type
- GV: 4-speed
- GW: 5-speed

Serial Number

Transmission Number (Hondamatic)

AV–1000001

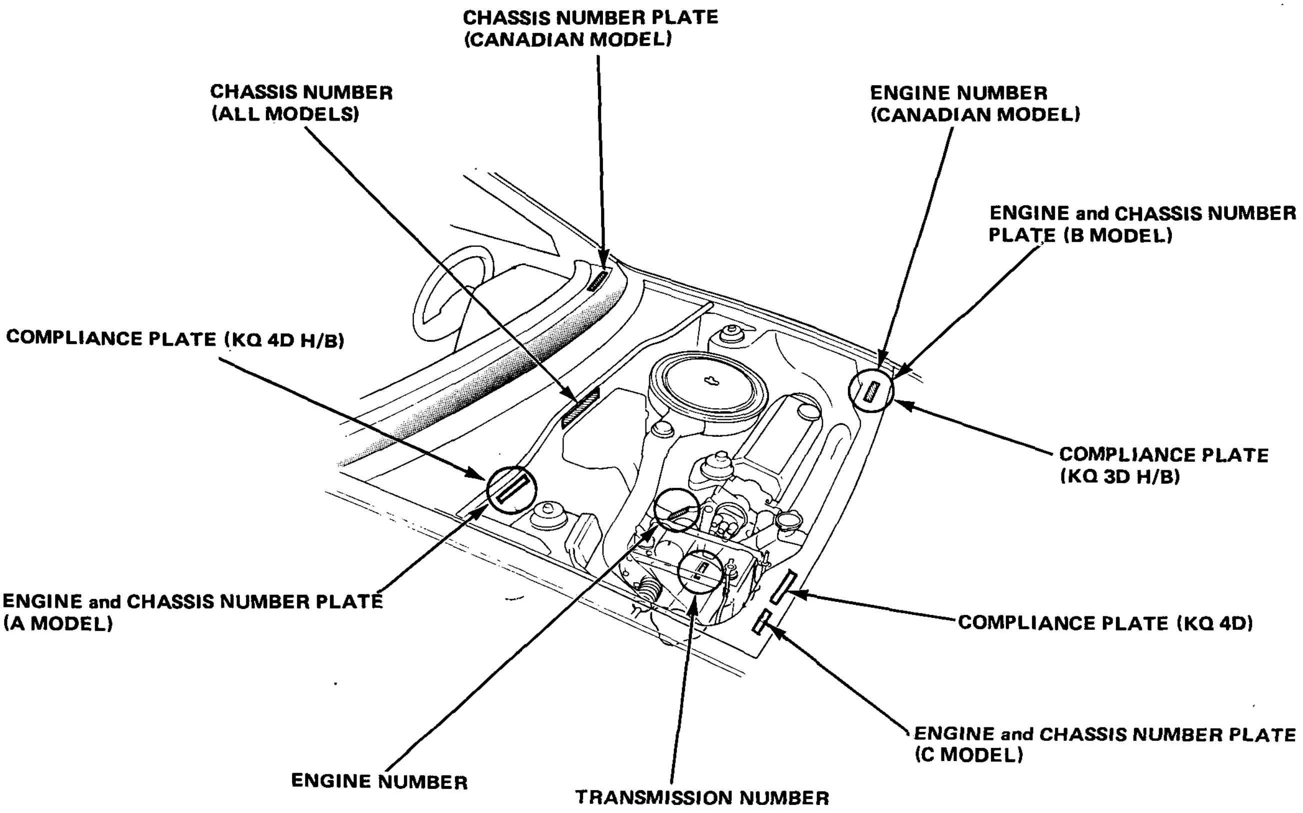
Transmission Type

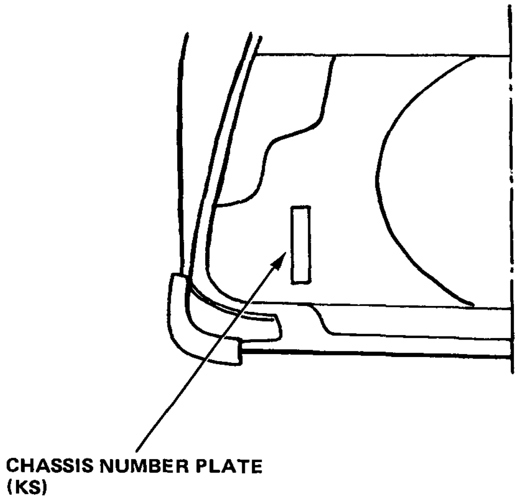
Serial Number

Abbreviations:

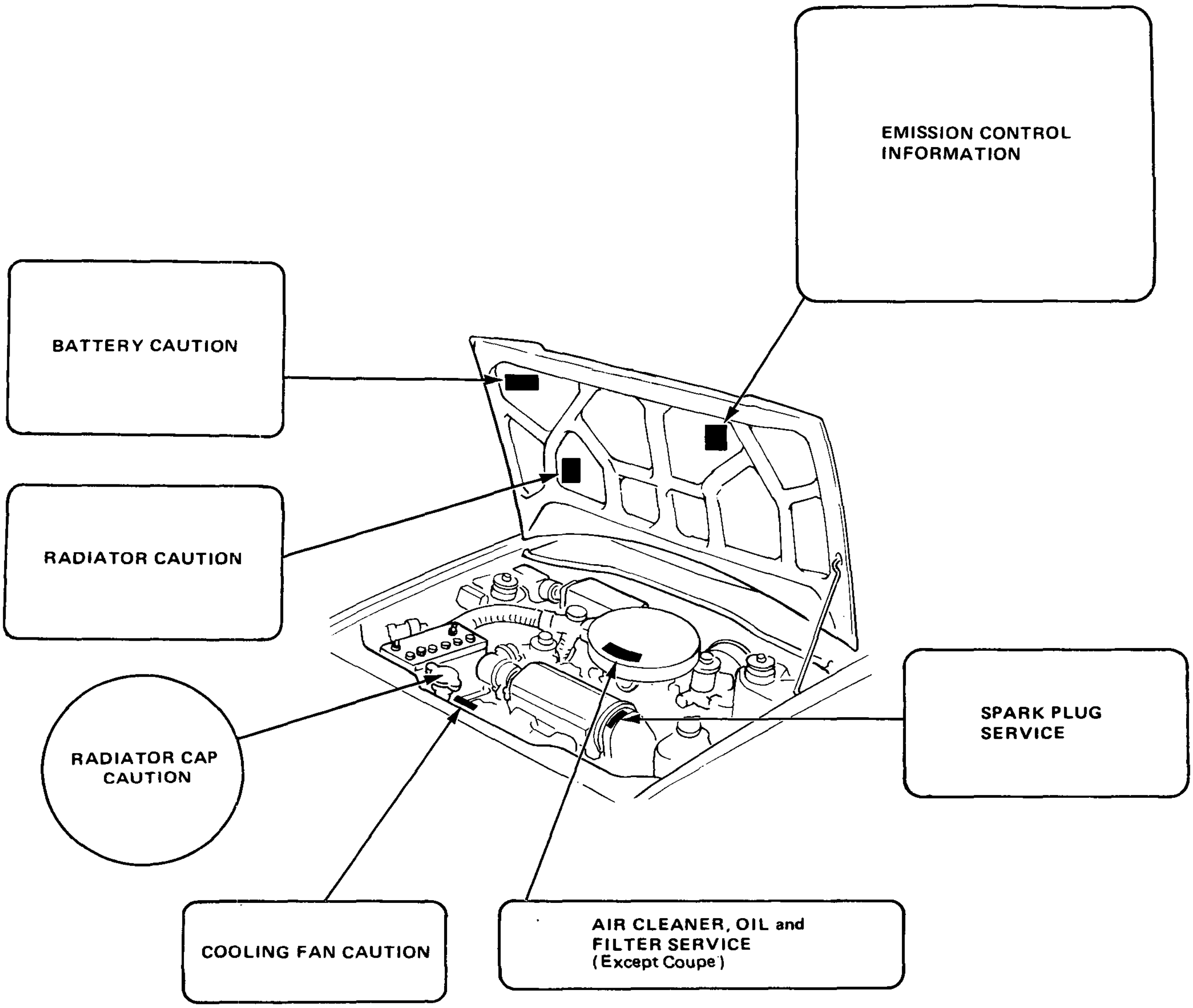
2D H/B	2 Door Hatchback
4D	4 Door Sedan
4D H/B	Wagon (Canadian model) Shuttle (Except Canadian model)

Identification Number Locations


CHASSIS NUMBER PLATE (CANADIAN MODEL)
CHASSIS NUMBER (ALL MODELS)
ENGINE NUMBER (CANADIAN MODEL)
ENGINE and CHASSIS NUMBER PLATE (B MODEL)
COMPLIANCE PLATE (KQ 4D H/B)
COMPLIANCE PLATE (KQ 3D H/B)
ENGINE and CHASSIS NUMBER PLATE (A MODEL)
COMPLIANCE PLATE (KQ 4D)
ENGINE and CHASSIS NUMBER PLATE (C MODEL)
ENGINE NUMBER
TRANSMISSION NUMBER


CHASSIS NUMBER PLATE (KS)

Label Locations


EMISSION CONTROL INFORMATION
BATTERY CAUTION
RADIATOR CAUTION
RADIATOR CAP CAUTION
SPARK PLUG SERVICE
COOLING FAN CAUTION
AIR CLEANER, OIL and FILTER SERVICE (Except Coupe)

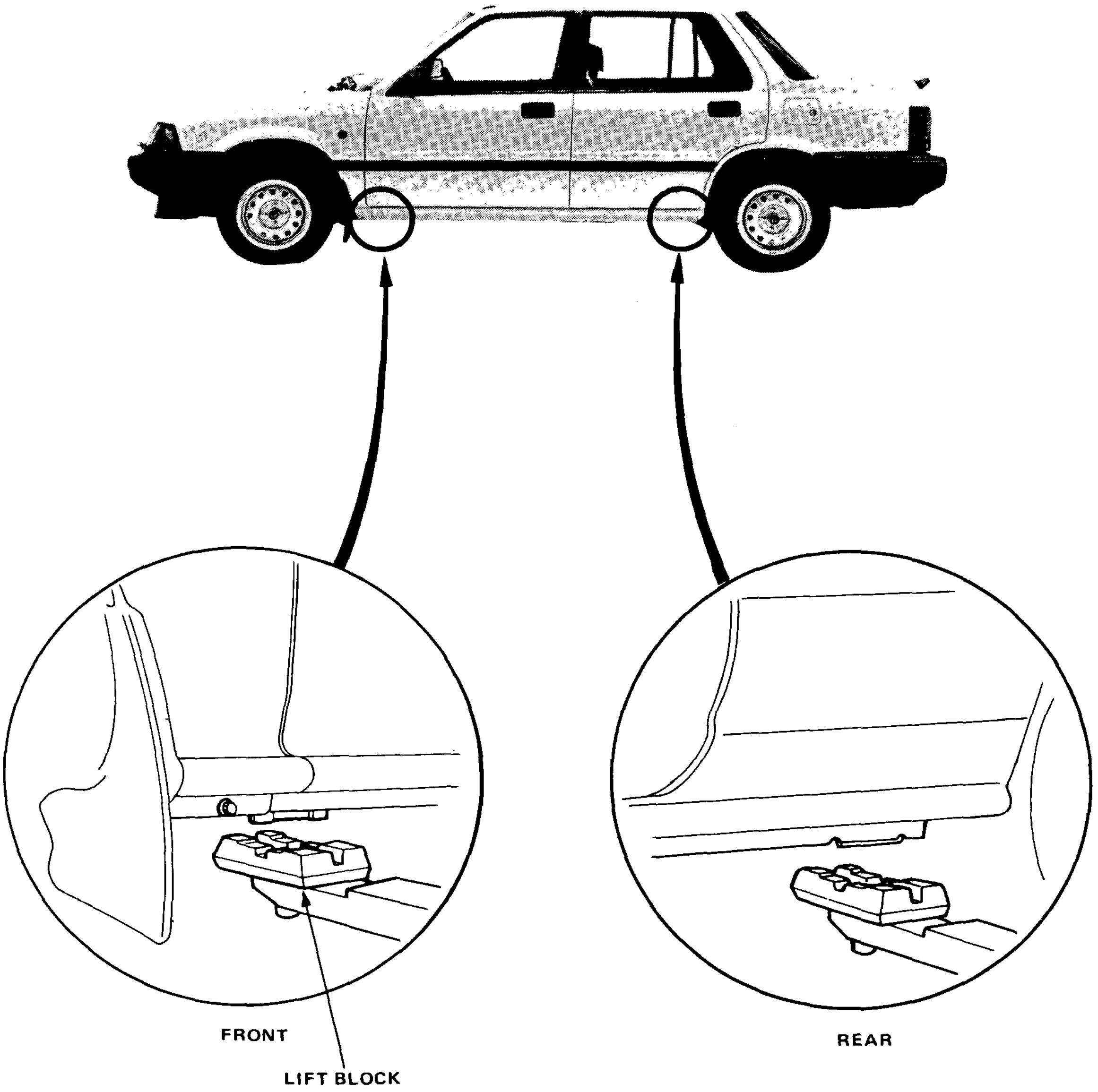
Lift and Support Points

Hoist

1. Place the lift blocks as shown.
2. Raise the hoist a few inches and rock the car to be sure it is firmly supported.
3. Raise the hoist to full height and inspect lift points for solid support.

WARNING ***When heavy rear components such as suspension, fuel tank, spare tire and trunk lid/hatch are to be removed, place additional weight in the trunk before hoisting. When substantial weight is removed from the rear of the car, the center of gravity may change and can cause the car to tip forward on the hoist.***

NOTE: Since each tire/wheel assembly weights approximately 30 lbs, placing the front wheels in the trunk can assist with the weight transfer.



(cont'd)

Lift and Support Points (cont'd)

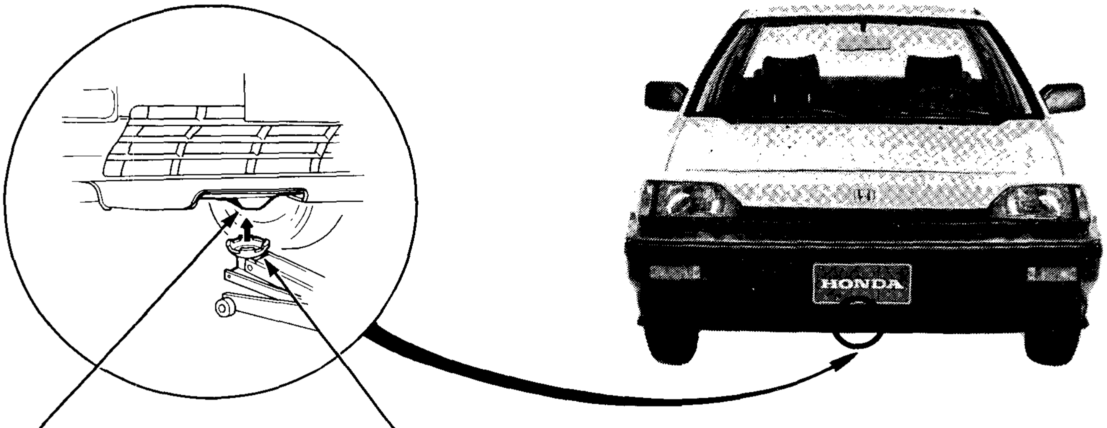
Floor Jack

1. Set the parking brake and block the wheels that are not being lifted.
2. When lifting the rear of car, put the gear shift lever in reverse (Hondamatic in PARK).
3. Raise the car high enough to insert the safety stands.
4. Adjust and place the safety stands as shown on page 1-7 so the car will be approximately level, then lower car onto them.

WARNING

- **Always use safety stands when working on or under any vehicle that is supported by only a jack.**
- **Never attempt to use a bumper jack for lifting or supporting the car.**

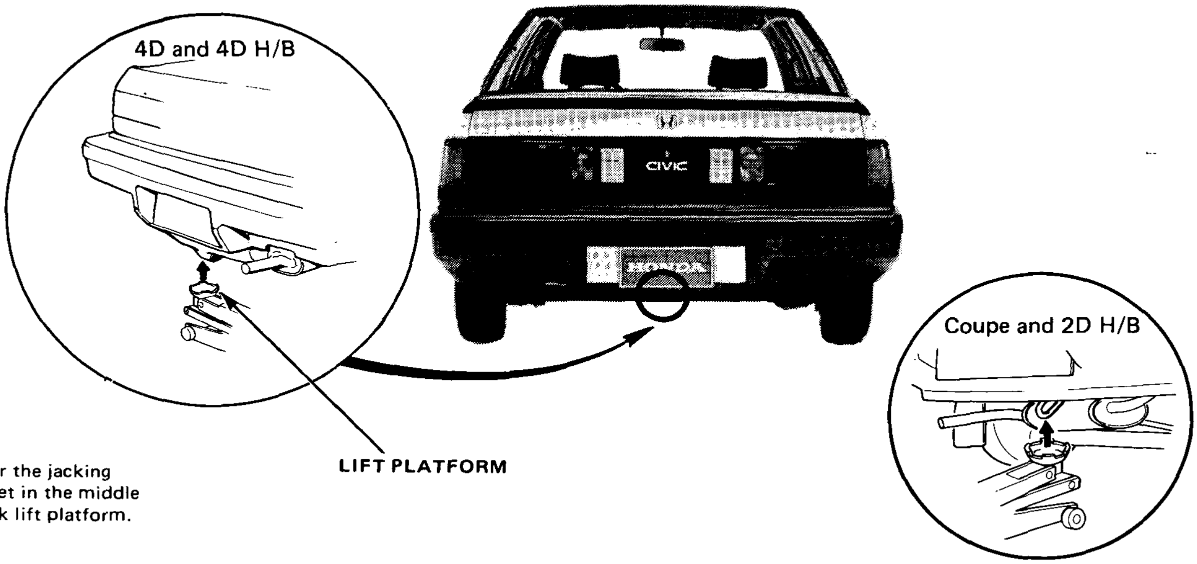
Front



Center the jacking bracket in the middle of jack lift platform.

LIFT PLATFORM

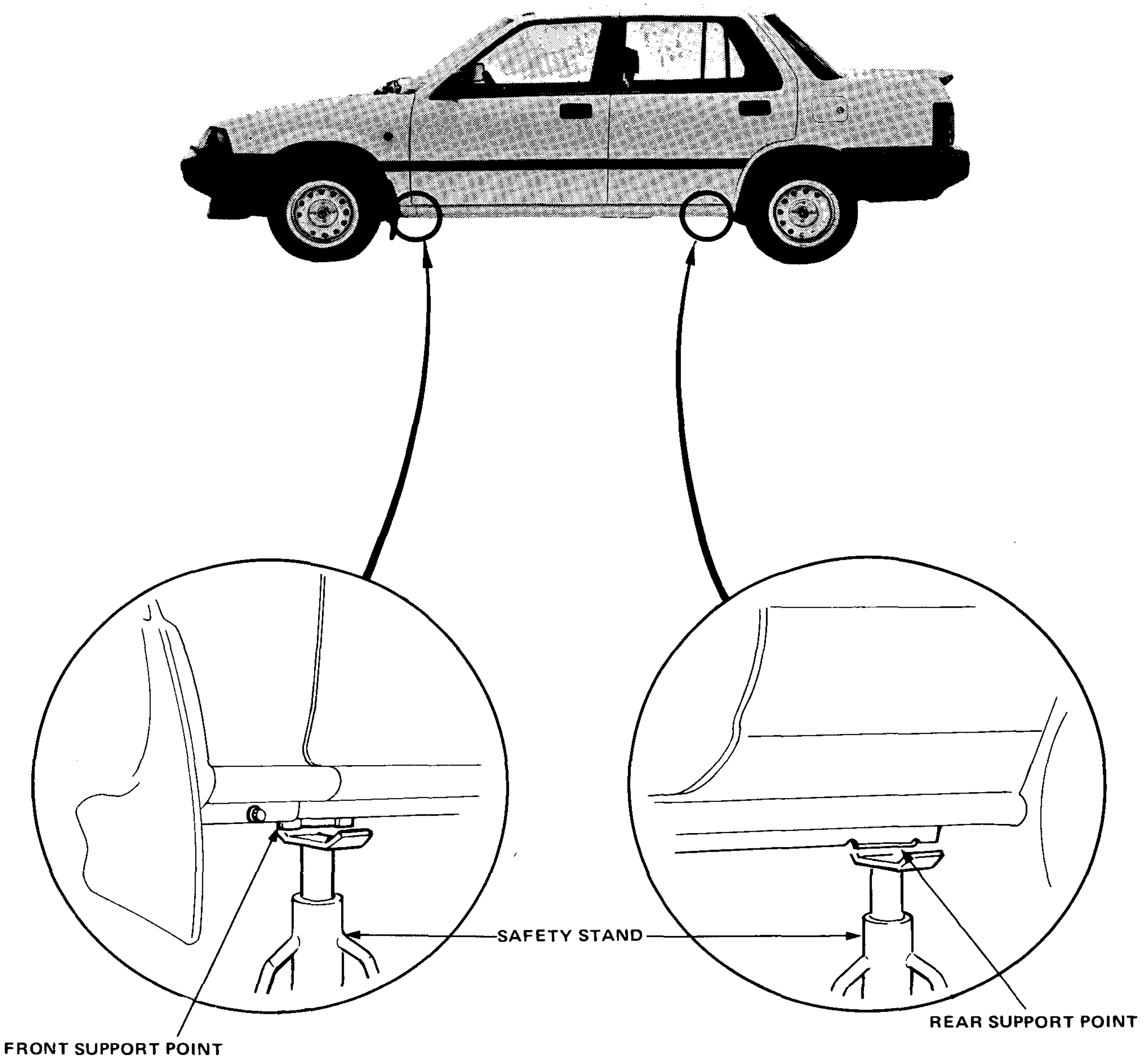
Rear



Center the jacking bracket in the middle of jack lift platform.

LIFT PLATFORM

Safety Stands


SAFETY STAND
FRONT SUPPORT POINT
REAR SUPPORT POINT

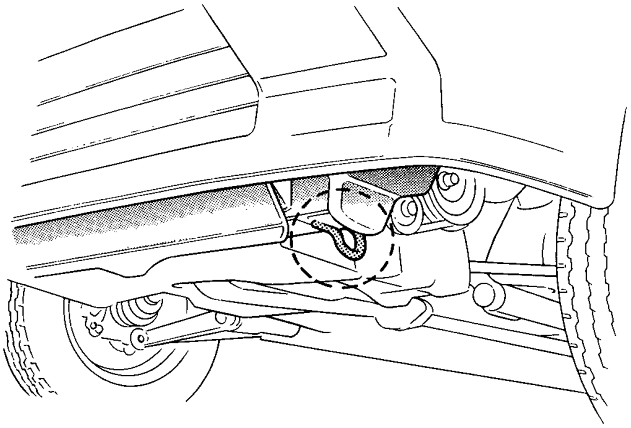
Towing

Towing

If possible, always tow the car with the front wheels off the ground. Do not use the bumpers to lift the car or to support the car's weight while towing. Check local regulations for towing with a rope or frame-mounted tow bar. A rope may be attached to the hook shown in the illustration. Do to attach a tow bar to either bumper.

If the car is to be towed with four wheels on the ground, observe the following precautions:

1. Wheels and axle must not be touching body or frame.
2. Turn the ignition key to the "I" position and make sure the steering wheel turns freely.
3. Place the transmission in NEUTRAL.
4. Release the parking brake.
5. DO NOT exceed 55 KPH (35 MPH) for distances of more than 80 km (50 miles).

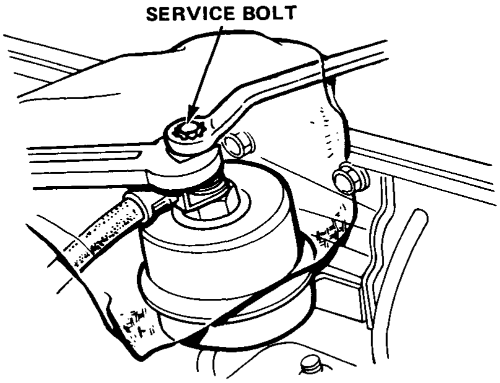


Preparation of Work

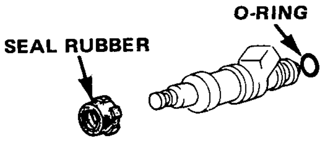
Special Caution Items For This Car

1. Apply liquid gasket to the transmission, oil pump cover, right side cover and water outlet. Use HONDA PARTS NO 08740-99986 as a liquid gasket.
   - Check that the mating surfaces are clean and dry before applying liquid gasket. Degrease the mating surfaces if necessary.
   - Apply liquid gasket evenly, being careful to cover all the mating surface.
   - To prevent leakage of oil, apply liquid gasket to the inner threads of the bolt holes.
   - Do not allow liquid gasket to stand for more than 20 minutes before assembly.
   - Fill the case with clean engine oil or coolant 30 minutes after assembly.

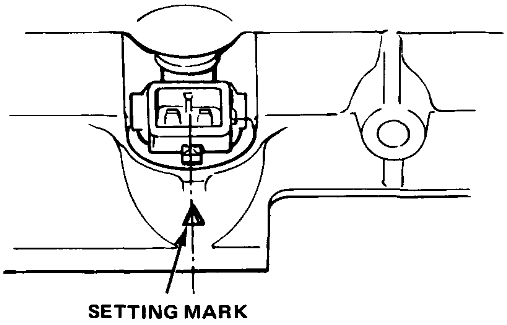
2. Fuel Line Servicing (Coupe: PGM-FI)
   - Relieve fuel pressure by loosening the service bolt provided on the top of the fuel filter before disconnecting a fuel hose or a fuel pipe.



   - Be sure to replace washers, O-rings, and seal rubbers with new ones when servicing fuel line parts.



   - When assembling the flare joint of the high-pressure fuel line, clean the joint and coat with new engine oil.
   - When installing an injector, check the angle of the coupler. The center line of the coupler should align with the setting mark on the injector holder.

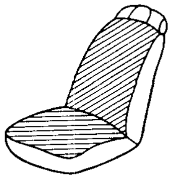


3. Inspection for fuel leakage (Coupe: PGM-FI)
   - After assembling fuel line parts, turn ON the ignition switch (do not operate the starter) so that the fuel pump is operated for approximately two seconds and the fuel is pressurized. Repeat this operation two or three times and check whether any fuel leakage has occurrred in any of the various points in the fuel line.
4. Installation of an amateur radio for cars equipped with PGM-FI
   Care has been taken for the PGM-FI control unit (computer) and its wiring to prevent erroneous operation from external interference, but erroneous operation of the computer may be caused by entry of extremely strong radio waves. Attention must be paid to the following items to prevent erroneous operation of the computer.
   - The antenna and the body of the radio must be at least 200 mm (7.9 in.) away from the computer. (The computer installation position is under the right side seat.)
   - Do not lead the antenna feeder and the coaxial cable over a long distance parallel to the wiring, and when crossing with the wiring is required, execute crossing at a right angle.
   - Do not install a radio with a large output (max. 10 W).

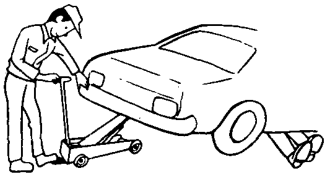
Preparation of Work

CAUTION: Observe all safety precautions and notes while working.

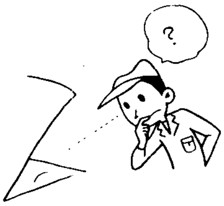
1. Protect all painted surfaces and seats against dirt and scratches with a clean cloth or vinyl cover.



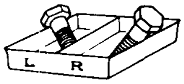
2. Work safely and give your work your undivided attention. When either the front or rear wheels are to be raised, block the remaining wheels securely. Exchange signals as frequently as possible when a work involves two or more workers. Do not run the engine unless the shop or working area is well ventilated.



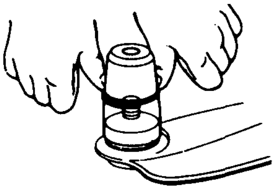
3. Prior to removing or disassembling parts, they must be inspected carefully to isolate the cause for which the service is called for. Observe all safety notes and precautions and follow the proper procedures as described in this manual.



Mark or place all removed parts in order in a parts rack so they can be placed back to their original places or parts from which they were removed or with which they were mated.

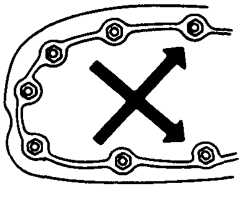


4. Use special tool when use of such a tool is specified.

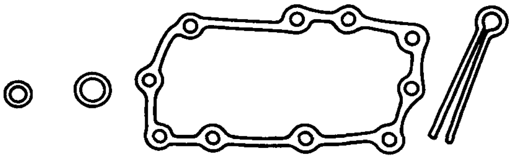


5. Parts must be assembled with the proper looseness or tightness according to the maintenance standards established.

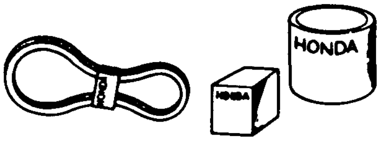
6. When tightening bolts or nuts, begin on center or larger diameter bolts and tighten them in criss-cross pattern in two or more steps if necessary.



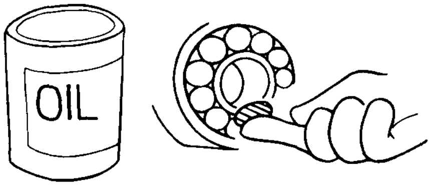
7. Use new packings, gaskets, O-rings and cotter pins whenever reassembling.



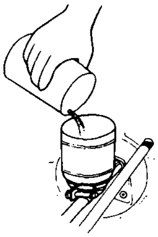
8. Use genuine HONDA parts and lubricants or those equivalent. When parts are to be reused, they must be inspected carefully to make sure they are not damaged or deteriorated and in good usable condition.



9. Coat or fill parts with specified grease where specified grease where specified (Page 4-2). Clean all removed parts in or with solvent upon disassembly.

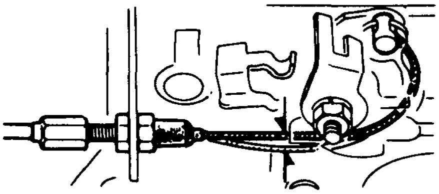


10. Brake fluid and hydraulic components
    - When replenishing the system, use extreme care not to allow dust and dirt from entering the inside.
    - Do not mix different brands of fluid as they may not be compatible.
    - Do not reuse drained brake fluid.
    - Brake fluid can cause damage to the painted surfaces. Wipe up spilled fluid at once.
    - After disconnecting brake hoses or pipes from the joint, be sure plug the opening to prevent loss of brake fluid.
    - Clean all disassembled parts only in clean BRAKE FLUID. Blow open all holes and passages with compressed air.



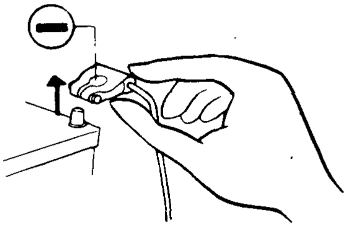
- Keep disassembled parts from air-borne dust and abrasives.
- Check that parts are clean before assembly.

11. Avoid oil or grease getting on rubber parts and tubes.
12. Upon assembling, check every possible part for proper installation and movement or operation.

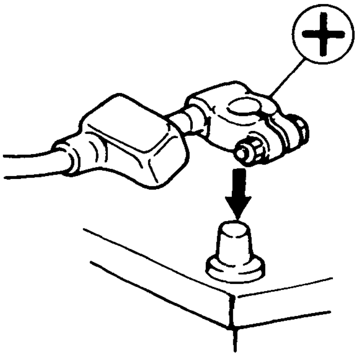


Electrical

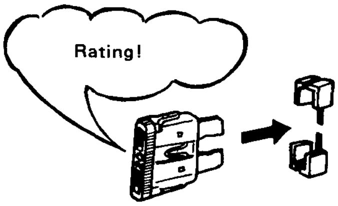
- Before making any repairs on electric wires or parts, disconnect the battery cables from the battery staring with the negative (—) terminal.



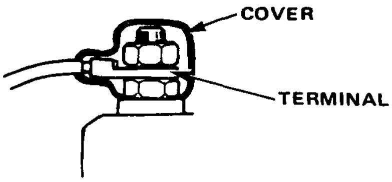
- After making repairs, check each wire or part for proper routing and installation. Also check to see that they are connected properly.
- Always connect the battery positive (+) cable first, then connect the negative (-) cable.



- Coat the terminals with clean grease after connecting the battery cables.
- Don't forget to install the terminal cover over the positive battery terminal after connecting.
- Before installing a new fuse, isolate the cause and take corrective measures, particularly when frequent fuse failure occurs.



- Be sure to install the terminal cover over the connections after a wire or wire harness has been connected.



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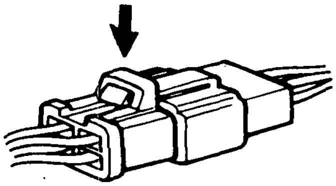
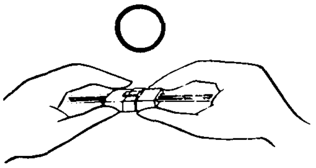
Preparation of Work

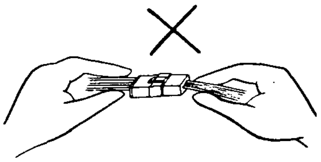
Electrical (cont'd)

- All plastic plugs have locking tabs that must be released before disconnecting, and must be aligned when re-connecting.

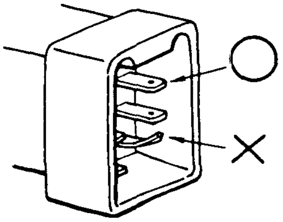


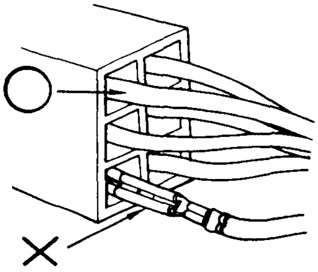
- When disconnecting a coupler, pull it off from the mating coupler by holding on both couplers.
- Never try to disconnect couplers by pulling on their wires.



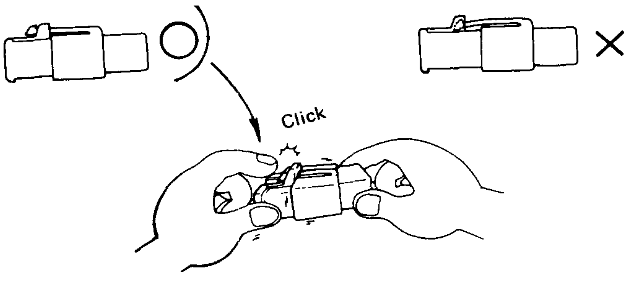


- Before connecting couplers, check to see that the terminals are in place and are not bent or distorted.

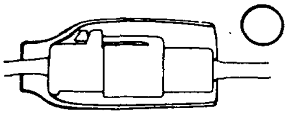


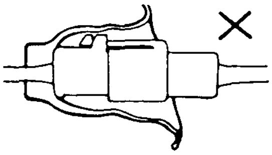


- Insert couplers fully until they will no longer go.
- Some couplers have locking tabs that must be aligned and engaged securely.
- Don't use wire harnesses with a loose wire or coupler.

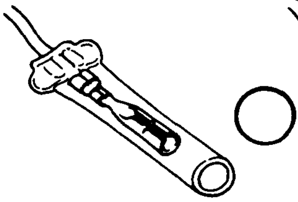


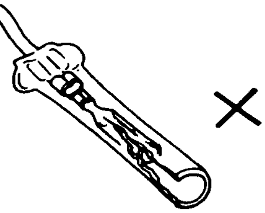
- Place the plastic cover over the mating coupler after reconnecting. Also check that the end is not inverted.



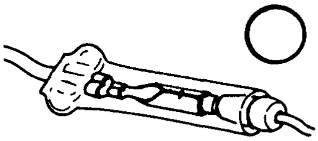


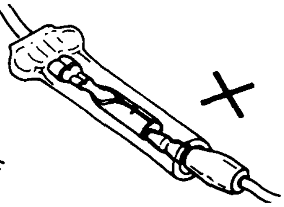
- Before connecting, check each connector cover for breakage. Also make sure that the female connector is tight and not pried open from the previous use.



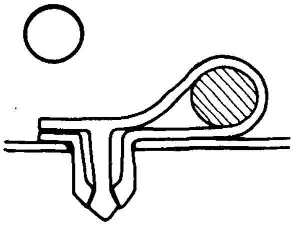


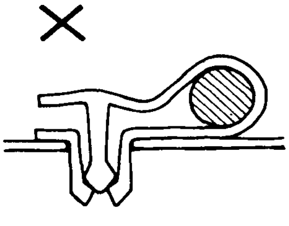
- Insert male connectors into the female connectors fully until they will no longer go.
- Be sure that plastic cover is placed over the connection.
- Don't place the opening of each plastic cover facing up.



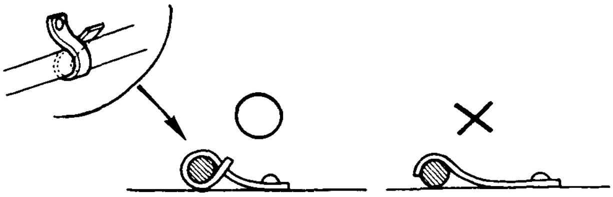


- Secure wires and wire harnesses to the frame with their respective wire bands at the designated locations. Tighten the bands so that only the insulated surfaces contact the wires or wire harnesses.

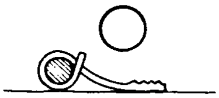


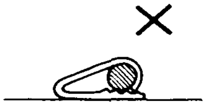


- A loose wire harness or cable can be a hazard to safety. After clamping, check each wire for security in its clamp.

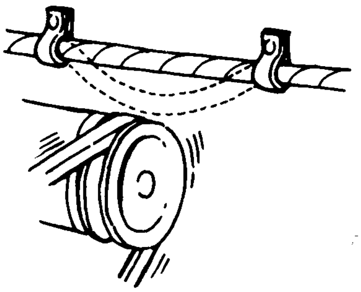


- Do not squeeze wires against the weld or nugget of its clamp when a weld-on clamp is used.

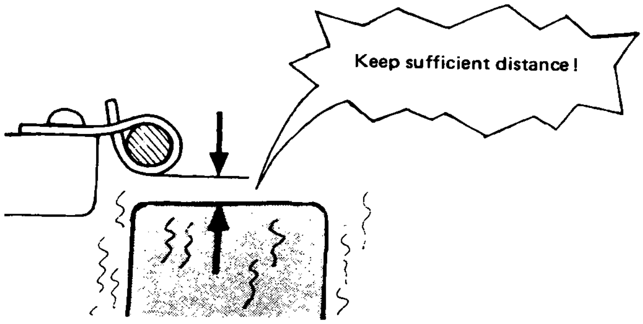




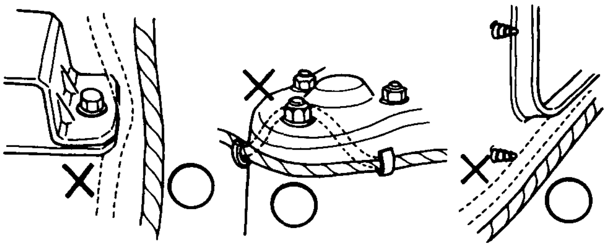
- After clamping, check each harness to be certain that it is not interferring with any moving or sliding parts of the vehicle.
- Keep wire harnesses away from the exhaust pipes and other hot parts.



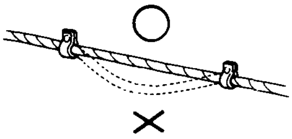
- Always keep a safe distance between wire harnesses and any heated parts.

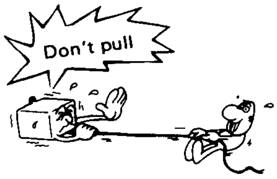


- Do not bring wire harnesses in direct contact with sharp edges or corners.
- Also avoid contact with the projected ends of bolts, screws and other fasteners.

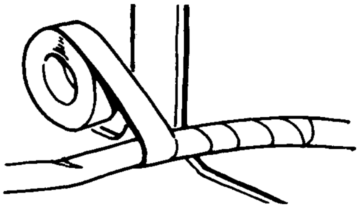


- Route harnesses so they are not pulled taut or slackened excessively.

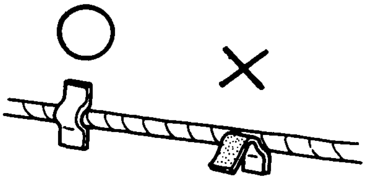




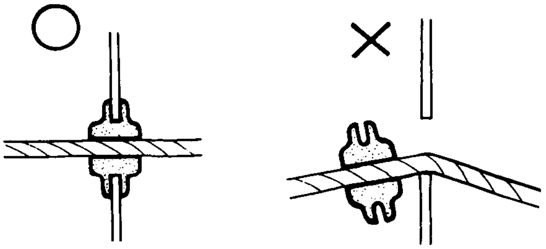
- Protect wires and harnesses with a tape or tube if they are in contact with a sharp edge or corner.



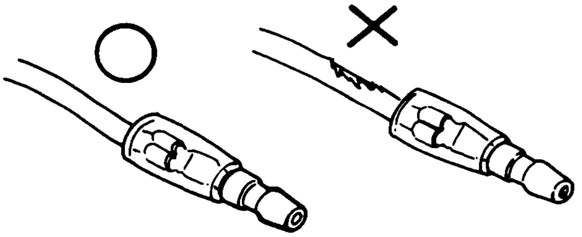
- Clean the attaching surface thoroughly if a plaster is used. Use a spirit wipe if necessary.



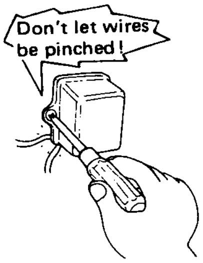
- Seat grommets in their grooves properly.



- Do not damage the insulator when connecting a wire.
- Do not use wires or harnesses with a broken insulator. Repair by wrapping with a protective tape or replace with new ones if necessary.



- After installing parts, make sure that wire harnesses are not pinched.

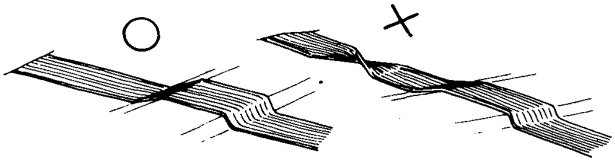

Don't let wires be pinched !

(cont'd)

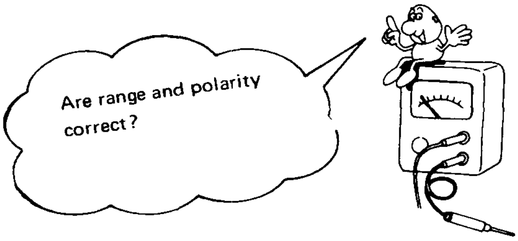
Preparation of Work

Electrical (cont'd)

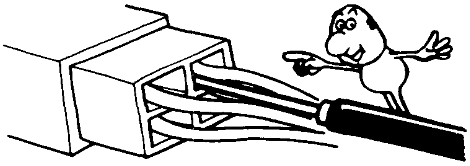
- After routing, check that the wire harnesses are not twisted or kinked.



- Wire harnesses should be routed so that they are not pulled taut, slackened excessively, pinched, or interferred with adjacent or surrounding parts in all stering positions.


Are range and polarity correct?

- When using the Service Tester, follow the manufacturer's instructions and those described in the Shop Manual.



- Do not throw or let parts fall.

- Rust is the enemy of all finished surfaces. Before connecting connectors and couplers, check the terminals and remove, if any, rust using a fine sand paper or emery cloth.

Symbol Marks

The following symbols stand for:

OIL : Apply engine oil.

BRAKE FLUID : Apply brake fluid.

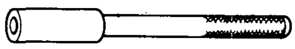
GREASE : Apply grease.

ATF : Apply Automatic Transmission Fluid.

Special Tools

Newly Provided Tools

Ref. No.	Tool Number	Description	Q'ty	Remarks	Section
①	07743–0020000	Valve Guide Driver	1		6
②	07973–PE00000	Piston Pin Replacement Kit	1	Use Changed to 07973–6570002 Attachment	7
②- 1	07973–PE00100	Piston Pilot	(1)		7
②- 2	07973–PE00200	Piston Pin Pilot Collar	(1)		7
②- 3	07973–PE00300	Piston Pin Insert Attachment A	(1)		7
②- 4	07973–PE00400	Piston Pin Insert Attachment B	(1)		7
③	07999–PE70000	System Checker Harness	1	PGM-FI	11
④	07411–0020000	Digital Circuit Tester	1		11
⑤	07406–0040000	Fuel Pressure Gauge Set	1		11
⑥	07920–SB20000	Fuel Sender Wrench	1		11
⑦	07924–PE60000	Ring Gear Holder	1		13
⑧	07974–PE60000	Clutch Disc Alignment Tool	1		13
⑨	07933–PE60000	Housing Puller	1		14
⑩	07998–SB20000	Accelerator Pedal Weight Set	1		16
⑩- 1	07998–SA50100	Main Accelerator Pedal Weight	(1)		16
⑩- 2	07998–SB20200	Sub Accelerator Pedal Weight	(1)		16
⑪	07965–SA70100	Front Hub Dis/Assembly Tool Pin A	1		20
⑫	07965–SA70200	Front Hub Dis/Assembly Tool B	1		20
⑬	07965–SB40000	Lower Bushing Driver	1	(4D Only)	20
⑭	07946–SB20000	Bearing Driver Attachment	1		20
⑮	07965–SB20000	Lower Control Arm Dis/Assembly Tool Kit	1		20
⑮- 1	07965–SB20100	Lower Control Arm Assembly Shaft	(1)		20
⑮- 2	07965–SB20200	Lower Control Arm Disassembly Tool	(1)		20
⑮- 3	07965–SB20300	Tool Base	(1)		20
⑮- 4	07965–SB20400	Lower Control Arm Assembly Tool	(1)		20
⑯	07934–SB20000	Shaft Seal Driver	1		24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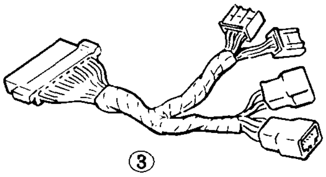
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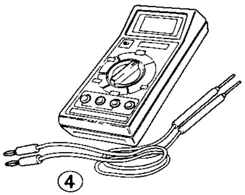
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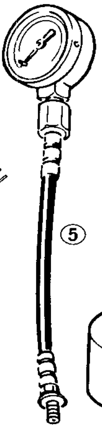
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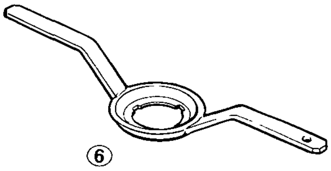
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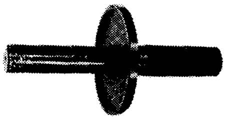
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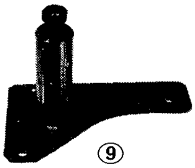
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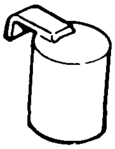
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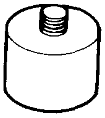
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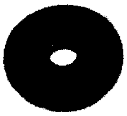
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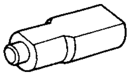
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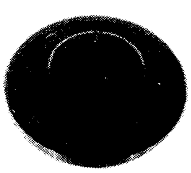
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Special Tools (Common with Other Models)

5. Engine Removal/Installation

Ref. No.	Tool Number	Description	Q'ty	Remarks
①	07944–6110200	8 mm Pin Punch	1	
②	07941–6920001	Ball Joint Remover	1	
③	07966–6340011	Engine Block Hanger	1	

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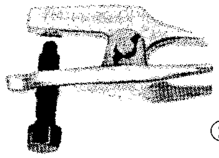
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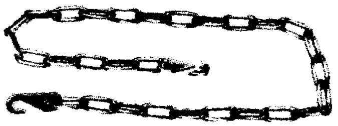
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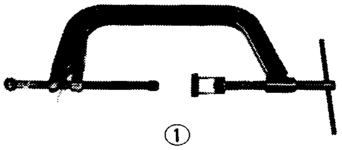
6. Cylinder Head/Valve Train

Ref. No.	Tool Number	Description	Q'ty	Remarks
①	07757–0010000	Valve Spring Compressor	1	07957–3290001 may also be used.
②	07942–6570100	Valve Guide Driver/Remover	1	
③	07743–0020000	Valve Guide Driver	1	
④	07984–6110000	Valve Guide Reamer	1	
⑤	07947–SB00100	Oil Seal Driver	1	Camshaft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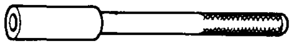
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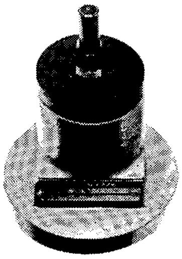
7. Engine Block

Ref. No.	Tool Number	Description	Q'ty	Remarks
①	07973–6570002	Piston Pin Insert Base Set	1	
②	07973–PE00100	Piston Pilot	1	Not included in base set. Use each with the baset set.
③	07973–PE00200	Piston Pin Insert Attachment A	1	
④	07973–PE00300	Piston Pin Pilot Collar	1	
⑤	07973–PE00400	Piston Pin Insert Attachment B	1	
⑥	07948–SB00100	Driver Attachment	1	Crankshaft Oil Seal (Clutch side)
⑦	07749–0010000	Driver	1	07949–6110000 may also be used.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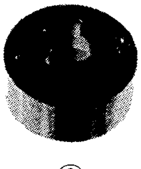
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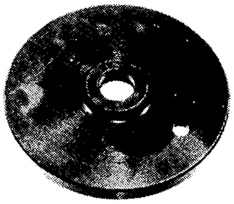
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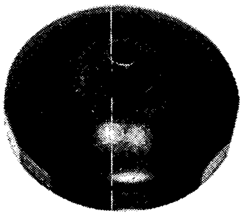
Special Tools

Special Tools (Common with Other Models)

8. Engine Lubrication

Ref. No.	Tool Number	Description	Q'ty	Remarks
①	07912–6340001	Oil Filter Socket Wrench	1	
②	07406–0030000	Oil Pressure Gauge Adaptor	1	
③	07947–6340000	Oil Seal Driver Attachment	1	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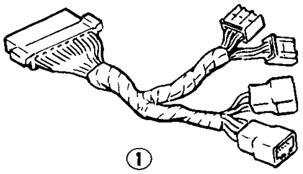
11. Fuel and Carburetor

Ref. No.	Tool Number	Description	Q'ty	Remarks
①	07999–PE70000	System Checker Harness	1	(PGM-FI)
②	07406–0040000	Fuel Pressure Gauge Set	1	(PGM-FI)
②-1	07406–0040100	Pressure Gauge	(1)	Component Tool
②-2	07406–0040200	Hose	(1)	Component Tool
③	07746–0010100	Driver Attachment 32 x 35 mm	1	(PGM-FI)
④	07746–0040200	Pilot 12 mm	1	(PGM-FI)
⑤	07749–0010000	Driver	1	07949–6110000 may also be used.
⑥	07920–SB20000	Fuel Sender Wrench	1	
⑦	07744–0010300	3.5 mm Pin Punch	1	(PGM-FI)
⑧	07614–0050100	Fuel Line Clip	1	
⑨	07411–0020000	Digital Circuit Tester	1	(PGM-FI)
⑩	07401–0010000	Float Level Gauge	1	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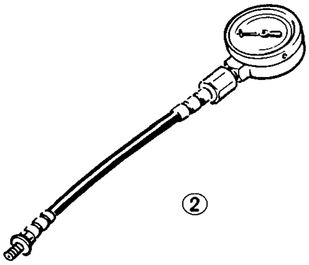
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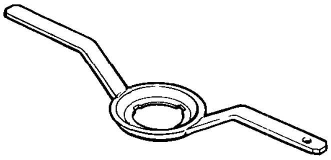
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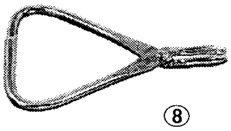
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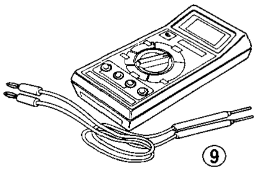
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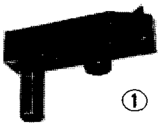
13. Clutch

Ref. No.	Tool Number	Description	Q'ty	Remarks
①	07924–PE60000	Ring Gear Holder	1	
②	07974–PE60000	Clutch Disc Alignment Tool	1	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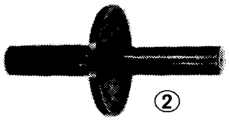
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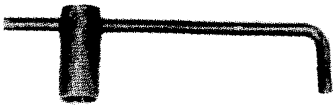
14. and 15. Manual Transmission

Ref. No.	Tool Number	Description	Q'ty	Remarks
①	07924–6340300	Mainshaft Holder	1	
②	07944–6110100	5 mm Pin Punch	1	
③	07933–PE60000	Transmission Housing Puller	1	
④	07749–0010000	Driver	1	07949–6110000 may also be used.
⑤	07947–6340500	Driver Attachment E	1	
⑥	07936–6340000	Bearing Remover Set	1	
⑦	07746–0010300	Driver Attachment 42 x 47	1	
⑧	07746–0010100	Driver Attachment 32 x 35	1	
⑨	07947–6110500	Driver Attachment E	1	Differential Oil Seal
⑩	07746–0010400	Driver Attachment 52X55	1	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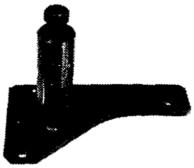
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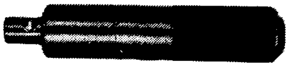
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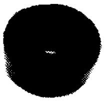
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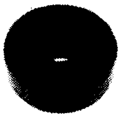
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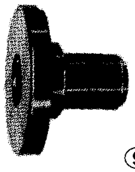
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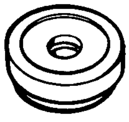
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Special Tools

Special Tools (Common with Other Models)

16. Hondamatic Transmission

Ref. No.	Tool Number	Description	Q'ty	Remarks
①	07974–6890300	Throttle Cable Adjustment Gauge	1	
②	07923–6890202	Mainshaft Holder	1	
③	07907–PD10000	Socket Wrench 30 mm	1	07907–6890100 may also be used.
④	07933–6890201	Transmission Housing Puller	1	Use corrected to 07936–6890200 is possible. For the correction method, refer to page 16-14.
⑤	07960–6890000	Clutch Spring Compressor	1	
⑤- 1	07960–6890100	Clutch Spring Compressor Attachment	1	Use changed to 07960–6120000 attachment
⑥	07749–0010000	Driver	1	07949–6110000 may also be used.
⑦	07947–6340500	Driver Attachment E	1	
⑧	07947–6110500	Oil Seal Driver Attachment	1	
⑨	07746–0010400	Driver Attachment 52 x 55 mm	1	
⑩	07936–6340000	Bearing Remover Set	1	
⑪	07406–0020003	Oil Pressure Gauge Set	1	
⑪-1	07406–0020201	Oil Pressure Gauge Hose	(3)	Component Tool
⑫	07998–SB20000	Accelerator Pedal Weight Set	1	
⑫-1	07998–SA50100	Main Accelerator Pedal Weight	(1)	Component Tool
⑫-2	07998–SB20200	Sub Accelerator Pedal Weight (0.3 kg)	(1)	Component Tool

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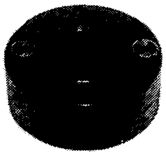
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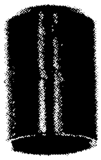
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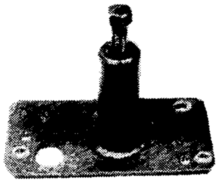
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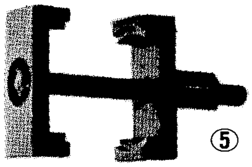
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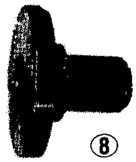
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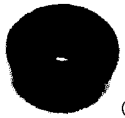
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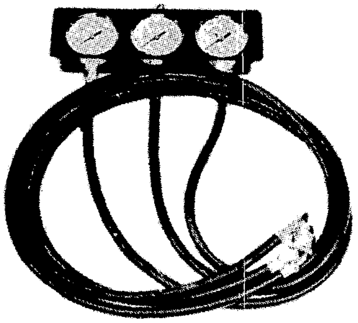
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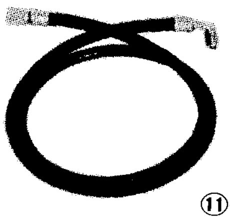
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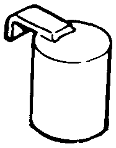
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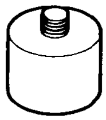
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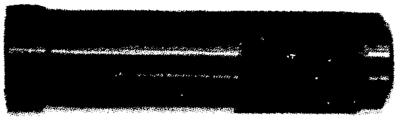
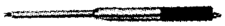
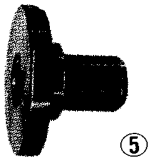
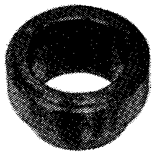
17. Differential

Ref. No.	Tool Number	Description	Q'ty	Remarks
①	07746–0030100	Driver C	1	
②	07944–SA00000	4 mm Pin Punch	1	
③	07947–6110500	Oil Seal Driver	1	
④	07749–0010000	Driver	1	07949–6110000 may also be used.
⑤	07947–6340500	Driver Attachment E	1	
⑥	07746–0030400	Attachment 35 mm	1	



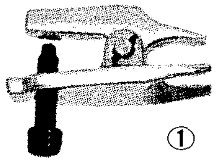






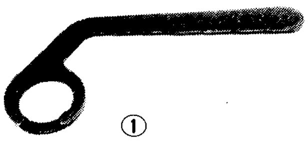
18. Drive Shaft

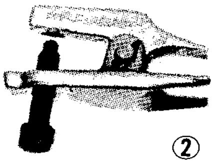
Ref. No.	Tool Number	Description	Q'ty	Remarks
①	07941–6920001	Ball Joint Remover	1	



19. Stearing

Ref. No.	Tool Number	Description	Q'ty	Remarks
①	07916–6920000	Steering Gearbox Lock Nut Wrench	1	07916–SA50001 may also be used.
②	07941–6920001	Ball Joint Remover	1	
③	07974–SA50800	Clip Guide (B)	1	Clip type





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Special Tools

Special Tools (Common with Other Models)

20. Suspension

Ref. No.	Tool Number	Description	Q'ty	Remarks
①	07410–0010200	Front Wheel Alignment Attachement B	1	
②	07941–6920001	Ball Joint Remover	1	
③	07965–SA70100	Front Hub Dis/Assembly Tool Pin A	1	
④	07965–6340301	Front Hub Dis/Assembly Tool Base A	2	
⑤	07965–SA70200	Front Hub Dis/Assembly Tool B	1	07947–6340000 may also be used.
⑥	07749–0010000	Driver	1	07949–6110000 may also be used.
⑦	07746–0010600	Driver Attachment 72 x 75	1	
⑧	07946–SB20000	Bearing Driver Attachment	1	
⑨	07974–SA50700	Clipe Guide (A)	1	
⑩	07965–SB40000	Lower Bushing Driver	1	4D Only
⑪	07965–SB20000	Lower Control Arm Dis/Assembly Tool Kit	1	
⑪- 1	07965–SB20100	Lower Control Arm Assembly shaft	(1)	
⑪- 2	07965–SB20200	Lower Control Arm Disassembly Tool	(1)	
⑪- 3	07965–SB20300	Tool Base	(1)	
⑪- 4	07965–SB20400	Lower Control Arm Assembly Tool	(1)	

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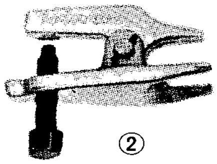
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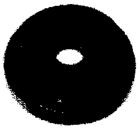
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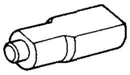
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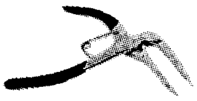
21. Brake

Ref. No.	Tool Number	Description	Q'ty	Remarks
①	07914–SA50000	Snap Ring Pliers	1	07914–323001 may also be used.
②	07921–0010100	Flare Nut Wrench	1	
③	07965–5790400	Master Cylinder Cup Guide	1	
④	07404–5790300	Vacuum Gauge	1	
⑤	07410–5790500	Tube Joint Attachment I	1	Short parts of the brake power kit 07504–6340100
⑥	07510–6340300	Vacuum Joint Tube A	1	
⑦	07406–5790200	Oil Pressure Gauge	2	
⑧	07410–5790100	Pressure Gauge Attachment C	1	
⑨	07510–6340100	Pressure Gauge Attachment	2	
⑩	07947–6890300	Driver Attachment C	1	
⑪	07749–0010000	Driver	1	07949–6110000 may also be used.
⑫	07975–SA50002	Brake Booster Adjusting Gauge	1	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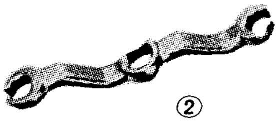
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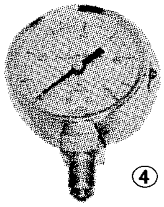
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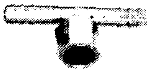
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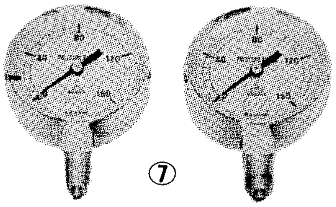
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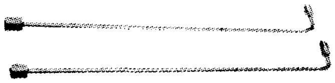
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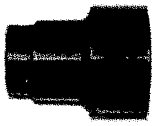
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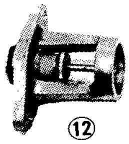
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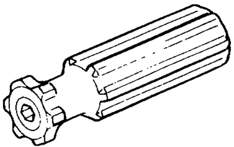
22. Body

Ref. No.	Tool Number	Description	Q'ty	Remarks
①	07703–0010300	Torx Driver Grip	1	
②	07703–0010600	Torx Driver Bit (T30HD)	1	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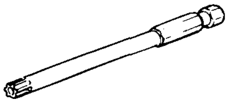
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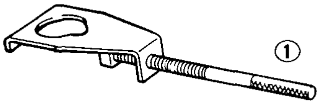
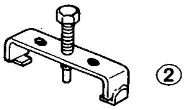
Special Tools

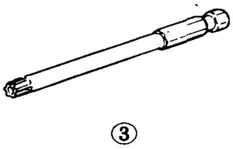
Special Tools (Common with Other Models)

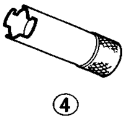
24. Air Conditioner

Ref. No.	Tool Number	Description	Q'ty	Remarks
①	07923–PB80001	Pulley Holder	1	
②	07934–PB80001	Clutch Remover	1	
③	07703–0010300	Torx Driver Bit (T30H)	1	
④	07934–SB20000	Shaft Seal Driver	1	







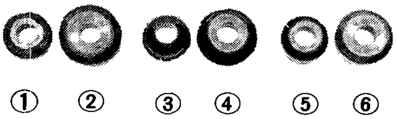


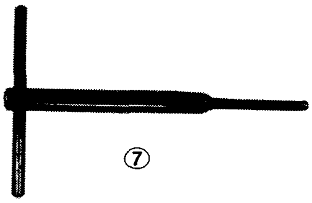
26. Ignition

Ref. No.	Tool Number	Description	Q'ty	Remarks
①	07744–0010300	3.5 mm Pin Punch	1	Distributor

Optional Tools

Ref. No.	Tool Number	Description	Q'ty	Remarks
①	07780–0012300	Valve Seat Cutter 32°	1	
②	07780–0012900	Valve Seat Cutter 32°	1	
③	07780–0014000	Valve Seat Cutter 60°	1	
④	07780–0014100	Valve Seat Cutter 60°	1	
⑤	07780–0010400	Valve Seat Cutter 45°	1	
⑥	07780–0010800	Valve Seat Cutter 45°	1	
⑦	07781–0010201	Valve Seat Cutter Holder	1	
⑧	07781–0010301	Valve Seat Cutter Holder	1	



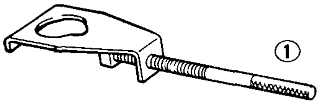


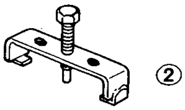
Special Tools

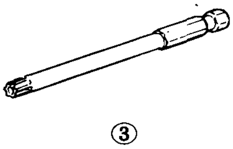
Special Tools (Common with Other Models)

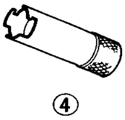
24. Air Conditioner

Ref. No.	Tool Number	Description	Q'ty	Remarks
①	07923–PB80001	Pulley Holder	1	
②	07934–PB80001	Clutch Remover	1	
③	07703–0010300	Torx Driver Bit (T30H)	1	
④	07934–SB20000	Shaft Seal Driver	1	







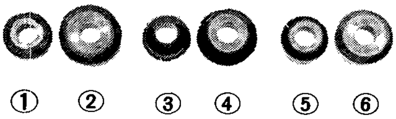


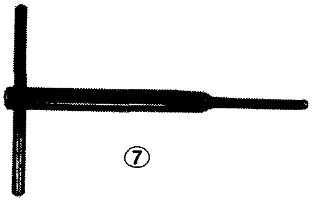
26. Ignition

Ref. No.	Tool Number	Description	Q'ty	Remarks
①	07744–0010300	3.5 mm Pin Punch	1	Distributor

Optional Tools

Ref. No.	Tool Number	Description	Q'ty	Remarks
①	07780–0012300	Valve Seat Cutter 32°	1	
②	07780–0012900	Valve Seat Cutter 32°	1	
③	07780–0014000	Valve Seat Cutter 60°	1	
④	07780–0014100	Valve Seat Cutter 60°	1	
⑤	07780–0010400	Valve Seat Cutter 45°	1	
⑥	07780–0010800	Valve Seat Cutter 45°	1	
⑦	07781–0010201	Valve Seat Cutter Holder	1	
⑧	07781–0010301	Valve Seat Cutter Holder	1	





Standards and Service Limits

*1300 and 1200

Unit: mm (in.)

Cylinder Head/Valve Train — Section 6

	MEASUREMENT			STANDARD (NEW)	SERVICE LIMIT
Compression	350 min^{-1} (rpm) and wide-open throttle			Nominal PGM-FI	1,274 kPa (13.0 kg/cm^2, 185 psi)
				Carburetor	1,225 kPa (12.5 kg/cm^2, 176 psi)
				Minimum PGM-FI	1,078 kPa (11.0 kg/cm^2, 156 psi)
				Carburetor	1,029 kPa (10.5 kg/cm^2, 149 psi)
				Maximum variation	196 kPa (2 kg/cm^2, 28 psi)
Cylinder head	Warpage			—	0.05 (0.002)
	Height			90 (3.54)	89.8 (3.53)
Camshaft	End play			0.05–0.15 (0.002–0.006)	0.5 (0.02)
	Oil clearance			0.050–0.098 (0.002–0.004)	0.15 (0.006)
	Runout			0.03 (0.001) max.	0.06 (0.002)
	Cam lobe height	PGM-FI	IN	40.865 (1.6089)	—
			EX	40.884 (1.6096)	—
		1500	IN	40.370 (1.5894)	—
			EX	40.391 (1.5902)	—
		1300	IN	40.056 (1.5770)	—
			EX	40.078 (1.5779)	—
		1200	IN	39.095 (1.5392)	—
			EX	39.120 (1.5402)	—
Valve	Valve clearance		IN	0.17–0.22 (0.007–0.009)	—
			EX	0.22–0.27 (0.009–0.011)	—
	Valve stem O.D.		IN	6.58–6.59 (0.2591–0.2594)	6.55 (0.258)
			EX	6.55–6.56 (0.2579–0.2583)	6.52 (0.257)
	Stem-to-guide clearance		IN	0.02–0.05 (0.001–0.002)	0.08 (0.003)
			EX	0.05–0.08 (0.002–0.003)	0.11 (0.004)
	Stem installed height		IN	48.16 (1.896)	48.95 (1.927)
			EX	48.16 (1.896)	48.95 (1.927)
Valve seat	Width		IN and EX	1.25–1.55 (0.049–0.061)	2.0 (0.08)
Valve spring	Free length		IN and EX	47.6 (1.87)	46.6 (1.83)
		Squareness Inner and Outer		—	1.75 (0.068)
Valve guide	I.D.		IN	6.61–6.63 (0.260–0.261)	6.65 (0.262)
			EX	6.61–6.63 (0.260–0.261)	6.65 (0.262)
Rocker arm	Arm-to-shaft clearance			0.018–0.054 (0.0007–0.0021)	0.08 (0.003)

Engine Block — Section 7

	MEASUREMENT		STANDARD (NEW)	SERVICE LIMIT
Cylinder block	Warpage of deck surface		0.07 (0.003) max.	0.10 (0.004)
	Bore diameter		74.00–74.02 (2.9133–2.9142)	74.10 (2.9173)
	Bore taper		0.07–0.012 (0.0003–0.0005)	0.05 (0.002)
	Reboring limit		—	0.5 (0.02)
Piston	Skirt O.D.	At 16 mm (0.63 in) from bottom of skirt	73.97–73.99 (2.9122–2.9133)	73.96 (2.912)
	Clearance in cylinder		0.01–0.05 (0.0004–0.0020)	0.07 (0.003)
	Piston-to-ring clearance	(Top)	0.03–0.06 (0.0012–0.0024)	0.13 (0.005)
		(Second)	0.030–0.055 (0.0012–0.0022)	0.13 (0.005)
Piston ring	Ring end gap (Top and second)		0.15–0.35 (0.006–0.014)	0.6 (0.024)
	Ring end gap (Oil)		0.30–0.90 (0.012–0.035)	1.1 (0.043)
Connecting rod	Pin-to-rod interference		0.02–0.04 (0.0008–0.0016)	0.02 (0.0008)
	Large end bore diameter		Nominal 45 (1.77) *43 (1.69)	—
	End play installed on crankshaft		0.15–0.30 (0.006–0.012)	0.40 (0.016)
Crankshaft	Main journal diameter		49.976–50.000 (1.9676–1.9685)	—
	Taper/out-of-round, main journal		0.005 (0.0002) max.	0.010 (0.0004)
	Rod journal diameter		41.976–42.000 (1.6526–1.6535)	—
			*39.976–40.000 (1.5739–1.5748)	—
	Taper/out-of-round, rod journal		0.005 (0.0002) max.	0.010 (0.0004)
	End play		0.10–0.35 (0.004–0.014)	0.45 (0.018)
	Runout		0.03 (0.0012) max.	0.06 (0.0024)
Bearings	Main bearing-to-journal oil clearance		0.024–0.042 (0.0009–0.0017)	0.07 (0.003)
	Rod bearing-to-journal oil clearance		0.020–0.038 (0.0008–0.0015)	0.07 (0.003)

Unit: mm (in.)

Engine Lubrication – Section 8

	MEASUREMENT	STANDARD (NEW)	SERVICE LIMIT
Engine oil	Capacity ℓ (US. qt., Imp. qt.)	4.0 (4.2, 3.4) After engine disassembly 3.5 (3.7, 3.1) After oil change, including oil filter 3.0 (3.2, 2.6) After oil change, without oil filter	
Oil pump	Displacement	35ℓ (9.2 US gal., 7.7 Imp gal.) 3,000 min^{-1} (rpm)	
	Inner-to-outer rotor radial clearance	0.14 (0.006) max.	0.2 (0.008)
	Pump body-to-rotor radial clearance	0.10–0.175 (0.004–0.007)	0.2 (0.008)
	Pump body-to-rotor side clearance	0.03–0.08 (0.001–0.003)	0.15 (0.006)
Relief valve	Pressure setting	333–340 kPa (3.4–4.2 kg/cm^2, 48–60 psi)	

Cooling – Section 10

	MEASUREMENT	STANDARD (NEW)
Radiator	Capacity (incl. heater) ℓ (US. Gal., Imp. Gal.) Includes reservoir tank 0.4 (0.11, 0.09)	Coupe (PGM-FI) 5.1 (1.3, 1.1) 1200 4MT 4.4 (1.4, 1.2) KG only 4MT 5.2 (1.4, 1.1) HM 4.9 (1.3, 1.1) 1300 4MT 4.9 (1.3, 1.1) KC only 4MT 5.2 (1.4, 1.1) Other models 5MT 4.9 (1.3, 1.1) KT only 5MT 4.4 (1.2, 1.0) Other models HM 4.9 (14, 1.1) KC and EC models HM 5.2 (1.3, 1.1) Other models 1500 5.2 (1.4, 1.1) KC and EC models 5.5 (1.5, 1.2) Other models Subtract 1ℓ (0.26 US Gal., 0.22 Imp. Gal.) from capacities at replacement
	Pressure cap opening pressure	74–103 kPa (0.75–1.05 kg/cm^2, 11–15 psi)
Thermostat	Starts to open	76–78°C (169–173°F)
	Full open	91°C (196°F)
	Valve lift at full open	8 (0.31) max.
Cooling fan	Fan-to-core clearance	ND 22 mm (0.87 in.) TOYO 17.5 mm (0.69 in.)
	Thermoswitch "ON" temperature	88.5–91.5°C (191–197°F)
	Thermoswitch "OFF" temperature	85.5–86.5°C (186–188°F)

Carburetor – Section 11

	MEASUREMENT	STANDARD (NEW)
Carburetor	Choke fast idle	1,500–2,500 min^{-1} (rpm)
	Idle speed with headlights and cooling fan off (On swedish model: on)	Manual 700–800 min^{-1} (rpm) Hondamatic 650–750 min^{-1} (rpm)
	Idle CO	KS and KQ below 2.0% KX 0.5–2.0% Other models below 3.0%
	Float level	35.4–37.4 (13.9–14.7 in.)
PGM-FI	Choke fast idle	1,200–2,000 min^{-1} (rpm)
	Idle speed with headlights and cooling fan off (on swedish model: on)	700–800 min^{-1} (rpm)
	Idle CO	KS below 1.5% KX 0.5–2%

(cont'd)

Standards and Service Limits(cont'd)

Fuel – Section 12

	MEASUREMENT		STANDARD (NEW)
Fuel pump	Delivery pressure Displacement		17.7–26.5 kPa (0.18–0.27 kg/cm^2, 27–38 psi) 170 cc/min at camshaft rpm 300 min^{-1} (rpm)
Fuel pump (PGM-FI)	Delivery pressure Displacement		230–270 kPa (2.35–2.75 kg/cm^2, 33–39 psi) 230 cc/min in 10 seconds
Fuel tank	Capacity	Coupe	41 ℓ (10.8 US. Gal., 9.0 Imp. Gal.)
		2D H/B	45 ℓ (11.9 US. Gal., 9.9 Imp. Gal.)
		4D, 4D H/B	46 ℓ (12.1 US. Gal., 10.1 Imp. Gal.)

Clutch – Section 13

	MEASUREMENT		STANDARD (NEW)	SERVICE LIMIT
Clutch pedal	Pedal height	Coupe	175 (6.89) to floor	–
		Except Coupe	179 (7.05) to floor	–
	Stroke		135–140 (5.3–5.5)	–
	Pedal play	Coupe	10–30 (0.39–1.18)	–
		Except Coup	16–21 (0.63–0.83)	–
	Disengagement height	Coupe	61 (2.4) min. to floor 31 (1.2) min. to carpet	
		2D H/B, 4D	83 (3.3) min. to floor 53 (2.1) min. to carpet	
		4D H/B	78 (3.1) min. to floor 48 (1.9) min. to carpet	
Clutch arm	Release arm adjustment		4.0–5.0 (0.16–0.20)	–
Flywheel	Clutch surface runout		0.05 (0.002) max.	0.15 (0.006)
Clutch plate	Rivet head depth		1.3 (0.05) min.	0.2 (0.008)
	Surface runout		0.8 (0.03) max.	1.0 (0.04)
	Radial play in splines		0.036–0.112 (0.0014–0.0044)	0.5 (0.02)
	Thickness		8.1–8.8 (0.32–0.35)	5.7 (0.22)
Clutch release bearing holder	I.D.		29.000–29.059 (1.142–1.144)	29.20 (1.150)
	Holder-to-guide sleeve clearance		0.040–0.132 (0.0016–0.0052)	0.2 (0.008)
Clutch cover	Uneveness of diaphragm spring		0.8 (0.03) max.	1.0 (0.04)

Manual Transmission – Section 14 and 15

Unit: mm (in.)

	MEASUREMENT		STANDARD (NEW)	SERVICE LIMIT
Transmission oil	Capacity ℓ (US. qt., Imp. qt)		2.5 (2.6, 2.2) at assembly 2.3 (2.4, 2.0) at oil change	
Mainshaft	End play		0.11–0.25 (0.004–0.010)	–
	Diameter of needle bearing contact area		27.997–28.010 (1.1022–1.1028)	27.94 (1.100)
	Diameter of fifth gear contact area		24.987–25.000 (0.9837–0.9843)	24.93 (0.981)
	Diameter of 62/22 ball bearing contact area		21.987–22.000 (0.8656–0.8661)	21.93 (0.863)
	Diameter of 6304 ball bearing contact area		19.983–19.996 (0.7867–0.7872)	19.93 (0.7846)
	Runout		0.02 (0.0008) max.	0.05 (0.0019)
Mainshaft fifth gear	I.D.		30.007–30.020 (1.1814–1.1819)	30.07 (1.184)
	End play		0.05–0.35 (0.0020–0.0138)	–
Countershaft	End play		0.35 (0.0138)	0.65 (0.026)
	Diameter of needle bearing contact area		30.004–30.017 (1.1813–1.1818)	29.94 (1.179)
	Diameter of ball bearing contact area		24.9935–25.0065 (0.9840–0.9845)	24.94 (0.982)
	Diameter of low gear contact area		31.984–32.000 (1.2592–1.2598)	31.93 (1.257)
	Runout		0.04 (0.0016)	0.10 (0.004)
Countershaft low gear	I.D.		37.009–37.025 (1.4570–1.4577)	37.08 (1.460)
	End play		0.03–0.08 (0.0012–0.0031)	0.18 (0.007)
Countershaft second, third/fourth gear	I.D.		37.009–37.025 (1.4570–1.4577)	37.08 (1.460)
	End play		0.05–0.12 (0.0020–0.0047)	0.18 (0.007)
Spacer collar	Second, Third	I.D.	25.980–25.991 (1.0228–1.0233)	26.04 (1.025)
		O.D.	31.989–32.000 (1.2594–1.2598)	31.93 (1.257)
		Length	28.01–28.13 (1.1028–1.1074)	–
	Fourth	I.D.	25.007–25.037 (0.9845–0.9857)	25.08 (0.987)
		O.D.	31.989–32.000 (1.2594–1.2598)	31.93 (1.257)
		Length	28.01–28.13 (1.1028–1.1074)	
Reverse idler gear	I.D.		15.016–15.043 (0.5912–0.5922)	15.08 (0.594)
	Gear-to-reverse gear shaft clearance		0.032–0.077 (0.0013–0.0030)	0.14 (0.006)
Synchronizer ring	Ring-to-gear clearance (ring pushed against gear)		0.85–1.10 (0.033–0.043)	0.4 (0.016)
Shift fork	Synchronizer sleeve gear		6.95–7.05 (0.2736–0.2776)	–
	Fork-to-synchronizer sleeve clearance		0.45–0.65 (0.018-0.026)	1.0 (0.039)
Reverse shift fork	End gap		6.9–7.0 (0.27–0.28)	–
	Fork-to-reverse idler gear clearance		0.1–0.3 (0.004–0.012)	0.7 (0.028)
	Groove width		7.05–7.25 (0.278–0.285)	–
	Fork-to-fifth/reverse shift shaft clearance		0.05–0.35 (0.002–0.014)	0.5 (0.020)
Shift arm B	I.D.		14.016–14.043 (0.5518–0.5529)	–
	Shift arm-to-shift guide clearance		0.022–0.067 (0.0009–0.0026)	0.15 (0.006)

(cont'd)

Standards and Service Limits(cont'd)

Unit: mm (in.)

Hondamatic Transmission — Section 16

	MEASUREMENT	STANDARD (NEW)	SERVICE LIMIT
Transmission oil	Capacity ℓ (US. qt., Imp. qt)	2.8 (3.0, 2.5) at oil change 5.4 (5.7, 4.8) at assembly	
Hydraulic pressure	Line pressure at 2,000 min^{-1} (rpm) 1500	735–784 kPa (7.5–8.0 kg/cm^2, 107–114 psi)	686 kPa (7.0 kg/cm^2, 100 psi)
	1200, 1300	637–686 kPa (6.5–7.0 kg/cm^2, 92–100 psi)	588 kPa (6.0 kg/cm^2, 85 psi)
	OD clutch pressure at 2,000 min^{-1}(rpm) 1500	686–784 kPa (7.0–8.0 kg/cm^2, 100–114 psi)	637 kPa (6.5 kg/cm^2, 92 psi)
	1200, 1300	588–686 kPa (6.0–7.0 kg/cm^2, 85–100 psi)	539 kPa (5.5 kg/cm^2, 78 psi)
	☆clutch pressure at 2,000 min^{-1}(rpm) 1500	686–784 kPa (7.0–8.0 kg/cm^2, 100–114 psi)	637 kPa (6.5 kg/cm^2, 92 psi)
	1200, 1300	588–686 kPa (6.0–7.0 kg/cm^2, 85–100 psi)	539 kPa (5.5 kg/cm^2, 78 psi)
	1st clutch pressure at 2,000 min^{-1}(rpm) 1500	686–784 kPa (7.0–8.0 kg/cm^2, 100–114 psi)	637 kPa (6.5 kg/cm^2, 92 psi)
	1200, 1300	588–686 kPa (6.0–7.0 kg/cm^2, 85–100 psi)	539 kPa (5.5 kg/cm^2, 78 psi)
	Governor pressure at 60 km/h	221–230 kPa (2.25–2.35 kg/cm^2, 32–33 psi)	216 kPa (2.2 kg/cm^2, 31 psi)
	Throttle pressure 1500	735–784 kPa (7.5–8.0 kg/cm^2,107–114 psi)	686 kPa (7.0 kg/cm^2, 100 psi)
	1200, 1300	637–686 kPa (6.5–7.0 kg/cm^2, 92–100 psi)	588 kPa (6.0 kg/cm^2, 85 psi)
Stall speed	Check with car on level ground	2,700 min^{-1} (rpm)	2,300–2,900 min^{-1} (rpm)
Clutch	Clutch initial clearance 1st	0.4–0.7 (0.016–0.028)	—
	2nd	0.65–0.80 (0.026–0.031)	—
	3rd	0.4–0.6 (0.016–0.024)	—
	Clutch return spring free length	30.5 (1.20)	28.5 (1.12)
	Clutch disc thickness	1.88–2.0 (0.074–0.079)	Until grooves worn out
	Clutch plate thickness	1.95–2.05 (0.077–0.079)	Discoloration
	Clutch end plate thickness Mark 1	2.3–2.4 (0.091–0.094)	↑
	Mark 2	2.4–2.5 (0.094–0.098)	
	Mark 3	2.5–2.6 (0.098–0.102)	
	Mark 4	2.6–2.7 (0.102–0.106)	
	Mark 5	2.7–2.8 (0.106–0.110)	
	Mark 6	2.8–2.9 (0.110–0.114)	
	Mark 7	2.9–3.0 (0.114–0.118)	
	Mark 8	3.0–3.1 (0.118–0.122)	
	Mark 9	3.1–3.2 (0.122–0.126)	↓
	Mark 10	3.2–3.3 (0.126–0.130)	Discoloration
Transmission	Diameter of needle bearing contact area on main and stator shaft	19.980–19.993 (0.7866–0.7871)	Wear or damage
	Diameter of needle bearing contact area on main 2nd gear collar	31.975–31.991 (1.2588–1.2594)	↑
	Diameter of needle bearing contact area on mainshaft 1st gear collar	30 975–30.991 (1.2195–1.2201)	
	Diameter of needle bearing contact area on countershaft (L side)	32.984–33.000 (1.2986–1.2993)	
	Diameter of needle bearing contact area on countershaft 3rd gear	31.975–31.991 (1.2589–1.2595)	
	Diameter of needle bearing contact area on countershaft 2nd gear	27.980–27.993 (1.1016–1.1021)	
	Diameter of needle bearing contact area on countershaft reverse gear collar	29.980–29.993 (1.1803–1.1808)	
	Diameter of needle bearing contact area on reverse idle gear	13.994–14.000 (0.5509–0.5512)	
	Reverse idler shaft holder diameter	14.016–14.034 (0.5518–0.5525)	
	Mainshaft 2nd gear I.D.	38.000–38.016 (1.4961–1.4967)	
	Mainshaft 1st gear I.D.	36.000–36.016 (1.4173–1.4179)	
	Countershaft 3rd gear I.D.	38.000–38.016 (1.4966–1.4966)	
	Countershaft 2nd gear I.D.	33.000–33.016 (1.4173–1.4179)	
	Countershaft 1st gear I.D.	35.000–35.016 (1.3779–1.3785)	
	Countershaft reverse gear I.D.	36.000–36.016 (1.4173–1.4179)	↓
	Reverse idler gear I.D.	18.007–18.020 (0.7086–0.7094)	Wear or damage

Unit: mm (in.)

	MEASUREMENT		STANDARD (NEW)	SERVICE LIMIT
Transmission (cont'd)	Mainshaft 2nd gear end play		0.07–0.15 (0.003–0.006)	–
	Mainshaft 1st gear end play		0.08–0.20 (0.003–0.008)	–
	Countershaft 3rd gear end play		0.07–0.15 (0.003–0.006)	–
	Countershaft 2nd gear end play		0.07–0.15 (0.003–0.006)	–
	Reverse idle gear end play		0.05–0.18 (0.0020–0.0071)	–
	Countershaft reverse gear end play		0.10–0.20 (0.004–0.008)	–
	Reverse gear hub O.D.		51.87–51.90 (2.0421–2.0433)	Wear or damage
	Thrust washer thickness			
	Mainshaft 2nd gear, Countershaft 3rd gear	A	2.97–3.00 (0.1169–0.1181)	–
		B	3.02–3.05 (0.1189–0.1201)	–
		C	3.07–3.10 (0.1209–0.1220)	–
		D	3.12–3.15 (0.1228–0.1240)	–
		E	3.17–3.20 (0.1248–0.1260)	–
		F	3.22–3.25 (0.1268–0.1280)	–
		G	3.27–3.30 (0.1287–0.1299)	–
		H	3.32–3.35 (0.1307–0.1319)	–
		I	3.37–3.40 (0.1327–0.1339)	–
	Mainshaft R side bearing		3.95–4.05 (0.1555–0.1594)	Wear or damage
	Mainshaft 1st gear		2.43–2.50 (0.0957–0.0984)	Wear or damage
	Countershaft 2nd gear thickness	A	2.27–2.30 (0.0894–0.0906)	–
		B	2.32–2.35 (0.0913–0.0925)	–
		C	2.37–2.40 (0.0933–0.0945)	–
		D	2.42–2.45 (0.0953–0.0965)	–
		E	2.47–2.50 (0.0972–0.0984)	–
		F	2.50–2.55 (0.0972–0.1004)	–
		G	2.52–2.60 (0.0992–0.1024)	–
	Mainshaft 1st gear collar length		22.50–22.55 (0.8858–0.8878)	–
	Mainshaft 1st gear collar flange thickness		2.5–2.6 (0.098–0.102)	Wear or damage
	Countershaft reverse gear collar length		14.0–14.1 (0.551–0.555)	–
	Countershaft reverse gear collar flange thickness		2.45–2.50 (0.096–0.098)	Wear or damage
	Mainshaft and countershaft feed pipe O.D. (at 20 mm from end)		7.97–7.98 (0.3138–0.3142)	7.95 (0.31)
	Mainshaft sealing ring 32 mm thickness		1.980–1.995 (0.0780–0.0785)	–
	Mainshaft bushing I.D.		8.000–8.015 (0.3150–0.3156)	8.03 (0.316)
	Countershaft bushing I.D.		8.000–8.015 (0.3150–0.3156)	8.03 (0.316)
	Mainshaft sealing ring groove width		2.025–2.060 (0.0797–0.0811)	2.08 (0.082)
Regulator valve body	Sealing ring contact area diameter		32.000–32.025 (1.2598-1.2608)	32.05 (1.26)
Shifting device and parking brake control	Reverse shift fork thickness		5.9–6.0 (0.232–0.236)	5.4 (0.21)
	Parking brake ratchet pawl		–	Wear or other defect
	Parking gear		–	Wear or other defect
	Throttle cam stopper		18.5–18.6 (0.7283–0.7323)	–
Servo body	Shift fork shaft bore I.D.	A	14.000–14.005 (0.5512–0.5514)	–
		B	14.006–14.010 (0.5514–0.5516)	–
		C	14.011–14.015 (0.5516–0.5518)	–
	Shift fork shaft valve bore I.D.		37.000–37.039 (1.4567–1.4582)	37.045 (1.4583)
Valve body	Oil pump gear side clearance		0.03–0.05 (0.0012–0.0020)	0.07 (0.003)
	Oil pump gear-to-body clearance		Drive: 0.21–0.27 (0.0083–0.0106) Driven: 0.05–0.09 (0.0020–0.0035)	– –
	Stator camshaft needle bearing bore I.D.		24.000–24.021 (0.9449–0.9457)	Wear or damage
	Stator camshaft needle bearing contact and O.D.		26.000–26.013 (1.0236–1.0241)	Wear or damage
	Oil pump driven gear I.D.		14.016–14.034 (0.5518–0.5525)	Wear or damage
	Oil pump shaft O.D.		13.980–13.990 (0.5503–0.5507)	Wear or damage

(cont'd)

Standards and Service Limits(cont'd)

Unit: mm (in.)

Differential — Section 17

	MEASUREMENT		STANDARD (NEW)	SERVICE LIMIT
Ring gear	Backlash		0.073–0.132 (0.0029–0.0052)	0.25 (0.010)
Differential carrier	Pinion shaft bore diameter		18.000–18.018 (0.7087–0.7094)	18.1 (0.71)
	Carrier-to-pinion shaft clearance		0.016–0.052 (0.0006–0.0020)	0.1 (0.004)
	Driveshaft bore diametter	Manual	26.005–26.025 (1.0238–1.0246)	–
		Hondamatic	28.000–28.021 (1.1024–1.1032)	–
	Carrier-to-driveshaft clearance		0.025–0.066 (0.0010–0.0026)	0.12 (0.005)
	Side clearance		0.10–0.20 (0.004–0.008)	0.15 (0.006)
Differential pinion gear	Backlash		0.05–0.15 (0.002–0.006)	
	Pinion gear bore diameter		18.041–18.061 (0.7103–0.7111)	–
	Pinion gear-to-pinion shaft clearance		0.057–0.095 (0.0022–0.0037)	0.15 (0.006)

Driveshaft — Section 18

	MEASUREMENT		STANDARD (NEW)	SERVICE LIMIT
Driveshaft	Right boot	As installed	471–476 (18.5–18.7)	–
	Left boot	As installed	771–776 (30.4–30.6)	–

Steering — Section 19

	MEASUREMENT	STANDARD (NEW)	SERVICE LIMIT
Steering wheel	Play	10.0 (0.39) Max.	–
	Pinion-starting torque N-m (kg-m, lb-ft)	0.5–1.3 (0.05–0.13, 0.36–0.94)	–

Suspension — Section 20

	MEASUREMENT			STANDARD (NEW)	SERVICE LIMIT
Wheel alignment	Front camber		Coupe	0°00'±1°	
			2D H/B	0°00'±1° KY: 0°20'±1°	
			4D	0°00'±1° KY: 0°30'±1°	
			4D H/B	0°30'±1° KC: 0°20'±1°	
				EC: 0°26'±1°	
	Rear camber			–0°45'±15'	
	Caster		Coupe	2°25'±1°	
			2D H/B	2°20'±1° KY: 2°10'±1°	
			4D	2°20'±1° KY: 2°15'±1°	
			4D H/B	2°00'±1° KC: 2°05'±1°	
				EC: 1°47'±1°	
	Front toe			0±3 mm (0±0.118 in.)	
	Rear toe			IN 2±2 mm (0.079±0.079 in.)	
	Kingpin inclination		Coupe	12°55'±30'	
			2D H/B	12°50'±30' KY: 12°30'±30'	
			4D	12°50'±30' KY: 12°15'±30'	
			4D H/B	11°45'±30' KC: 12°00'±30'	
				EC: 11°54'±30'	
	Steering angle	R/L	Inside	41°30' ± 2°	
			Outside	34°30' ± 2°	
Wheel	Rim runout	Steel	Axial	0–1.0 (0–0.039)	–
			Radial	0–1.0 (0–0.039)	–
		Aluminum	Axial	0–0.7 (0–0.028)	–
			Radial	0–0.7 (0–0.028)	–

Brake — Section 21

Unit: mm (in.)

	MEASUREMENT		STANDARD (NEW)	SERVICE LIMIT
Parking brake lever	Play in stroke 200N (20 kg, 44 lbs)		To be locked when pulled 4–8 notches	
Foot brake pedal	Pedal height		174 (6.8) 4D H/B:168 (6.6) to floor	—
	Free play		1–5 (0.04–0.20)	5 (0.20)
Master cylinder	Piston-to-push rod clearance		0–0.4 (0–0.016)	—
Brake drum	I.D.		180 (7.09)	181 (7.13)
		4D H/B	200 (7.87)	201 (7.91)
Lining	Thickness		4.5 (0.18)	2.0 (0.08)
Disc brake	Disc thickness	Ventilated	17.0 (0.67)	15.0 (0.59)
		Solid	12.0 (0.47)	10.0 (0.39)
	Disc runout		—	0.10 (0.004)
	Disc parallelism		0.007 (0.0003)	0.015 (0.0006)
	Pad thickness	4D H/B EC and KX	10.0 (0.39)	3.0 (0.12)
		Other models	9.5 (0.37)	3.0 (0.12)

		Vacuum (mmHg)	Pedal Pressure kg (lbs)	Line Pressure kg/cm^2 (psi)
Brake Booster	Characteristic	0	20 (44)	16 (227) min
		300	20 (44)	46 (654) min
		500	20 (44)	66 (939) min

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Standards and Service Limits (cont'd)

Engine Electrical — Section 25, 26 and 27

Unit: mm (in.)

	MEASUREMENT		STANDARD (NEW)
Ignition coil	Rated voltage Insulation resistance		12 Volts 10,000 ohms min.
	Performance: Make sure strong sparks jump across electrodes (3-point tester)		
Ignition wire	Resistance		25,000 ohms max.
Spark plug	Type Standard	KC, EC	NGK: BPR6EY-11, ND: W20EXR-U11
		Other models	NGK: PP6EY-11, ND: W20EX-U11
	Gap		1.0–1.1 (0.039–0.043)
Ignition timing	At idling	1200	17±2° BTDC
		1300	12±2° BTDC
		1500 Canadian model MT	10±2° BTDC
		1500 Canadian model HM European model	14±2° BTDC
		1500 PGM-F1 model	16±2° BTDC
		1500 General export model	16±2° BTDC
Battery	Lighting capacity (20-hour ratio) Starting capacity (5-second ratio)		47 Ampere Hours 8.4V minimum at 300 Ampere draw

Ignition coil performance:

Voltage	Camshaft	Secondary Voltage	3-point gap	Condition
12V	3,000 min^{-1} (rpm)	17 ± 4 kV	13–19 (0.51–0.75)	At 80°C (176°F)

Alternator		ND		MITSUBISHI	
		STANDARD (NEW)	SERVICE LIMIT	STANDARD (NEW)	SERVICE LIMIT
	Output at no-load	14V at 1,090 min^{-1} (rpm)	14V at 1,400 min^{-1} (rpm)	14V at 1,100 min^{-1} (rpm)	14V at 1,400 min^{-1} (rpm)
	Output	14V/55A at 6,000 min^{-1} (rpm)	50A at 5,000 min^{-1} (rpm)	14V/55A at 6,000 min^{-1} (rpm)	50A at 5,000 min^{-1} (rpm)
	Coil resistance (rotor)	2.9 ohm	2.8–3.0 ohms	3 ohm	
	Slip ring O.D.	14.4 (0.57)	13.5 (0.53)	23.0 (0.91)	22.5 (0.89)
	Brush length	13.5 (0.53)	5.0 (0.20)	18.0 (0.71)	8.0 (0.31)
	Brush spring tension	330g (11.6 oz)	200g (7.05 oz)	370g (13.05 oz)	210g (7.41 oz)

	MEASUREMENT	STANDARD (NEW)
Alternator belt	Deflection midway between pulleys/load	7–10 (0.28–0.39)/98 (10 kg, 22 lb) for used belt 4–6.5 (0.16–0.26)/98 (10 kg, 22 lb) after replacement of belt

Starting motor		ND 0.8kW		HITACHI 0.8kW		ND 1.0kW, 1.4kW		MITSUBA 1.0kW, 1.4kW	
	MEASUREMENT	STANDARD (NEW)	SERVICE LIMIT	STANDARD (NEW)	SERVICE LIMIT	STANDARD (NEW)	SERVICE LIMIT	STANDARD (NEW)	SERVICE LIMIT
	Mica depth	0.5–0.8 (0.020–0.031)	0.2 (0.008)	0.5–0.8 (0.020–0.031)	0.2 (0.008)	0.5–0.8 (0.020–0.031)	0.2 (0.008)	0.4–0.5 (0.016–0.020)	0.15 (0.006)
	Commutator runout	0–0.5 (0.020)	0.3 (0.012)	0–0.1 (0.004)	0.4 (0.016)	0–0.02 (0.0008)	0.05 (0.020)	0–0.02 (0.008)	0.05 (0.020)
	Commutator O.D.	28.0 (1.10)	27.0 (1.06)		39.0 (1.54)	30.0 (1.18)	29.0 (1.14)	28.0 (1.10)	27.5 (1.08)
	Brush length	15.5–16.5 (0.61–0.65)	10.0 (0.39)	14.5–15.5 (0.61–0.65)	12.0 (0.47)	12.5–13.5 (0.49–0.53)	8.5 (0.33)	14.3–14.7 (0.56–0.58)	9.3 (0.37)
	Spring pressure (new)	1.2 kg (2.6 lb)	–	1.6 kg (3.5 lb)	–	1.75 kg (3.8 lb)	–	2.1 kg (4.6 lb)	–

Design Specifications

Coupe

	ITEMS	METRIC	ENGLISH	NOTES
DIMENSIONS	Overall Length	3,675 mm	144.7 in.	
	Overall Width	1,625 mm	63.9 in.	
	Overall Height	1,290 mm	50.8 in.	
	Wheelbase	2,200 mm	86.6 in.	
	Tread Front/Rear	1,400/1,415 mm	55.1/55.7 in.	
	Ground Clearance	165 mm	6.5 in.	
	Seating Capacity	4 2 (KS,KW)		
	Overhang Front/Rear	770/705 mm	30.3/27.8 in.	Includes bumper
WEIGHTS	Engine Weight	107 kg	236 lb.	Excludes transmission
	Curb Weight	820 kg (KE)	1,808 lb.	
		825 kg (KF,KG,KB,KW,KX)	1,819 lb.	
		830 kg (KS, Finland)	1,830 lb.	
	Weight Distribution (F/R)	500/320 kg (KE)	1,102/705 lb.	
		505/320 kg (KF,KG,KB,KW,KX)	1,113/705 lb.	Curb weight
		510/320 kg (KS, Finland)	1,124/705 lb.	+ A/C—21.3 kg (47 lb.)
	Max. Permissible Weight (EC)	1,220 kg (KF,KG,KB,KE,KX,KW)	2,690 lb.	+ Cargo—45 kg (100 lb.)
		1,150 kg (KS)	2,535 lb.	+ Passengers—68 kg x 2 (150 lb. x 2)
	Gross Vehicle Weight Rating (MVSS)	1,075 kg	2,370 lb.	+ Tolerance = G.V.W.R.
	Carrying (loading) Weight	45 kg	100 lb	
CAPACITIES	Engine Oil:			
	drain and refill (with filter)	3.5 ℓ	3.7 US qt, 3.1 Imp qt	
	initial fill	4.0 ℓ	4.2 US qt, 3.4 Imp qt	
	Transmission Oil:			
	drain and refill	2.3 ℓ	2.4 US qt, 2.0 Imp qt	
	initial fill	2.5 ℓ	2.6 US qt, 2.2 Imp qt	
	Fuel Tank	41 ℓ	10.8 US gal, 9.0 Imp gal	
	Cooling System/Drain and Refill Radiator	5.1/4.1 ℓ	5.4/4.3 US qt, 4.5/3.6 Imp qt	
ENGINE	Type	Water cooled, 4-cycle O.H.C.		
	Cylinder Arrangement	4-cylinder in-line, transverse		
	Bore and Stroke	74 x 86.5 mm	2.91 x 34.1 in.	
	Compression Ratio	8.7 : 1		
	Displacement	1,488 cm^3	91 cu in.	
	Valve Train	Timing belt driven, single overhead camshaft		
	Lubrication System	Trochoid pump		
	Fuel Required	Super or premium grade gasoline with 97 Research Octane Number or higher.		
	Valve Timing Intake OPEN	10° ATDC		OPEN measurement begins CLOSE measurement ends at point where valve reaches 1 mm lift. Measurement begins/ends at point where valve reaches 0.6 mm lift.
	CLOSE	40° ABDC		
	Exhaust OPEN	40° BBDC		
	CLOSE	10° BTDC		
TRANS MISSION	Clutch	Single plate dry, diaphragm spring		
	Transmission	Synchronized 5 forward 1 reverse		
	Primary Reduction	Direct 1 : 1		
	Gear Ratio 1st	2.916		
	2nd	1.764		
	3rd	1.181		
	4th	0.846		
	5th	0.714		
	Reverse	2,916		
	Final Reduction	Single helical gear, 4.266		
	Clutch Lining Area	147 cm^2	22.9 sq. in.	
STEERING	Gear Type	Rack and Pinion		
	Overall Ratio	19.5 : 1		
	Turns, lock-to-lock	4.1		
	Steering Wheel Diameter	370 x 360 mm	14.6 x 14.2 in.	
SUSPENSION	Front	Independent, Strut, Torsion bar spring		
	Rear	Rigid axle, Trailing arm, Coil spring		

(cont'd)

Design Specifications (cont'd)

Coupe

	ITEMS	METRIC	ENGLISH	NOTES
WHEEL ALIGNMENT	Camber Front and Rear	0°/–0°45′		
	Caster	2°25′		
	Toe Front	0 mm	0 in.	
	Rear	IN 2 mm	IN 0.08 in.	
	Steering Axis Inclination	12°55′		
BRAKES	Type, Front	Power assisted ventilated disc		
	Type, Rear	Power assisted drum		
	Lining Surface Area Front/Rear	36/50.2 cm^2	5.6/7.8 sq. in.	
	Effective Disc Diameter	190 mm	7.5 in.	
	Brake Drum I.D.	180 mm	7.1 in.	
	Parking Brake Type	Mechanical expanding, rear two wheel brakes		
TIRES	Size	175/70 HR13		
ELECTRICAL	Battery	12 V – 45 AH		KE and KF
		12 V – 47 AH		
	Starter	12 V – 1.0 kW		
	Alternator	12 V – 55 amps		
	Fuses	20 A x 3, 15 A x 5, 10 A x 9		
	Main Fuse	55 A x 1, 45 A x 2 30A x 1 (Sunroof)		
	Headlights	12 V – 60/55 W		
	Speedometer/Gauge Illumination Lights	12 V – 3.4 W		
	Front Turn Signal Lights	12 V – 21 W		
	Position Lights	12 V – 5 W		
	Front Side Marker Lights	12 V – 5 W		
	Warning Indicator Lights	12 V – 1.4 W		
	Interior Light	12 V – 5 W (Sunroof 12V-8W)		
	Rear Turn Signal Lights	12 V – 21 W		
	Stop/Taillights	12 V – 21/5 W		
	Turn Signal Indicator Lights	12 V – 1.4 W		
	Tail Gate Light	12 V – 3.4 W		
	Back-up Lights	12 V – 21 W		
	License Lights	12 V – 5 W		
	Rear Fog Lights	12 V – 21 W (EC)		
	Heater Panel Light	12 V – 1.4 W, 12 V – 1.2 W		

2D H/B

	ITEMS			METRIC	ENGLISH	NOTES
DIMENSIONS	Overall Length			3,810 mm	150 in.	
	Overall Width			1,635 mm	64.4 in.	
				1,625 mm (KC)	63.9 in.	
	Overall Height			1,340 mm	52.8 in.	
				1,335 mm (KC)	52.6 in.	
	Wheelbase			2,380 mm	93.7 in.	
	Tread Front/Rear			1,400/1,415 mm	55.1/55.7 in.	
	Ground Clearance			165 mm	6.5 in.	
				175 mm (KY)	6.9 in.	
	Seating Capacity			5		
	Overhang		Front/Rear	735/695 mm	28.9/27.4 mm	Includes bumper
WEIGHTS	Engine Weight	1500		107 kg	236 lb.	Excludes transmission
		1300		98.6 kg	217.4 lb.	
	Curb Weight					
		1500	5-speed	825 kg (KF,KG,KB,KX,KQ)	1,819 lb.	
				830 kg (KW,KS,KE)	1,830 lb.	
				866 kg (KC)	1,909 lb.	
			Hondamatic	840 kg (KQ)	1,852 lb.	
		1300	5-speed	795 kg (KF,KG,KB,KW,KS)	1,753 lb.	
				805 kg (KE,KX)	1,775 lb.	
				811 kg (KC)	1,788 lb.	
			4-speed	814 kg (KC)	1,795 lb.	
			Hondamatic	810 kg (KF,KG,KB,KW,KS)	1,786 lb.	
				820 kg (KE,KX)	1,808 lb.	
				828 kg (KC)	1,825 lb.	
		1200	4-speed	775 kg (KP,KT,KU)	1,709 lb.	
				785 kg (KG)	1,731 lb.	
			Hondamatic	790 kg (KP,KT,KU)	1,742 lb.	
	Weight Distribution (F/R)	1500	5-speed	495/330 kg (KF,KG,KB,KX)	1,091/728 lb.	
				500/330 kg (KW,KS,KE)	1,102/728 lb.	
				520/346 kg (KC)	1,146/763 lb.	
				500/325 kg (KQ)	1,102/716 lb.	
		1300	5-speed	475/320 kg (KF,KG,KB,KW,KS)	1,047/705 lb.	
				475/330 kg (KE,KX)	1,047/728 lb.	
				486/325 kg (KC)	1,071/716 lb.	
			4-speed	488/326 kg (KC)	1,076/719 lb.	
			Hondamatic	490/320 kg (KF,KG,KB,KW,KS)	1,080/705 lb.	
				490/330 kg (KE,KX)	1,080/728 lb.	
				505/323 kg (KC)	1,113/712 lb.	
		1200	4-speed	465/310 kg (KP,KT,KU)	1,025/683 lb.	
				470/315 kg (KG)	1,036/694 lb.	
			Hondamatic	480/310 kg (KP,KT,KU)	1,058/683 lb.	
	Max. Permissible Weight (EC)			1,270 kg	2,800 lb.	Curb weight + A/C—22 kg (49 lb.) + Cargo—45 kg (100 lb.) + Passengers—68 kg x 5 (150 lb. x 5) + Tolerance = G.V.W.R.
				1,200 kg (KS)	2,646 lb.	
	Gross Vehicle Weight Rating (MVSS)			1,290 kg (1500 engine)	2,850 lb.	
				1,240 kg (1300 engine)	2,740 lb.	
	Carring (loading) Weight Capacity			25 kg (KC)	55 lb. (KC)	
CAPACITIES	Engine Oil:					
	drain and refill (with filter)			3.5 ℓ	3.7 US qt, 3.1 Imp qt	
	initial fill			4.0 ℓ	4.2 US qt, 3.4 Imp qt	
	Transmission Oil:					
	drain and refill			2.3 ℓ	2.4 US qt, 2.0 Imp qt	
	initial fill			2.5 ℓ	2.6 US qt, 2.2 Imp qt	
	Hondamatic Fluid:					
	transmission			2.8 ℓ	3.0 US qt, 2.5 Imp qt	
	system			5.4 ℓ	5.7 US qt, 4.8 Imp qt	

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Design Specifications (cont'd)

2D H/B

	ITEMS		METRIC	ENGLISH	NOTES
CAPACITIES	Fuel Tank		45 ℓ	11.9 US gal, 9.9 Imp gal	
	Cooling System/ Drain and Refill Radiator	1500	5.2/4.2 ℓ (KC,KF,KG,KB,KW,KS,KE,KX)	5.5/4.4 US qt, 4.6/3.7 Imp qt	
			5.5/4.5 ℓ (KQ,KY,KP,KD,KT,KU)	5.8/4.8 US qt, 4.8/4.0 Imp qt	
		1300 5-speed	4.4/3.4 ℓ (KC,KF,KG,KB,KW,KS,KE,KX)	4.7/3.6 US qt, 3.9/3.0 Imp qt	
		4-speed	4.9/3.9 ℓ (KC)	5.2/4.1 US qt, 4.3/3.4 Imp qt	
			5.2/4.2 ℓ (KP,KD,KT,KU)	5.5/4.4 US qt, 4.6/3.7 Imp qt	
		Hondamatic	4.9/3.9 ℓ (KC,KF,KG,KB,KW,KS,KE,KX)	5.2/4.1 US qt, 4.3/3.4 Imp qt	
			5.2/4.2 ℓ (KP,KD,KT,KU)	5.5/4.4 US qt, 4.6/3.7 Imp qt	
		1200 4-speed	4.4/3.4 ℓ (KG)	4.7/3.6 US qt, 3.9/3.0 Imp qt	
			5.2/4.2 ℓ (KP,KT,KU)	5.5/4.4 US qt, 4.6/3.7 Imp qt	
		Hondamatic	4.9/3.9 ℓ (KP,KT,KU)	5.2/4.1 US qt, 4.3/3.4 Imp qt	
ENGINE	Type		Water cooled, 4-cycle O.H.C.		
	Cylinder Arrangement		4-cylinder in-line, transverse		
	Bore and Stroke	1500	74 x 86.5 mm	2.91 x 3.41 in.	
		1300	74 x 78 mm	2.91 x 3.07 in.	
		1200	74 x 69 mm	2.91 x 2.72 in.	
	Compression Ratio	1500	8.7 : 1		
		1300	8.7 : 1		
		1200	8.2 : 1		
	Displacement	1500	1,488 cm³	91 cu in.	
		1300	1,342 cm³	82 cu in.	
		1200	1,187 cm³	72 cu in.	
	Valve Train		Timing belt driven, single overhead camshaft		
	Lubrication System		Trochoid pump		
	Fuel Required		Low-lead or regular grade gasoline with 91 Research Octane number or higher.		

	Valve Timing		1500		1300		1200	NOTES
	Intake	OPEN	10° ATDC	*¹ 10° ATDC	15° ATDC	*¹ 10° ATDC	15° ATDC	OPEN measurement begins CLOSE measurement ends at point where valve reaches 1 mm lift.
		CLOSE	20° ABDC	20° ABDC	15° ABDC	15° ABDC	15° ABDC	
	Exhaust	OPEN	25° BBDC	25° BBDC	20° BBDC	20° BBDC	15° BBDC	
		CLOSE	10° BTDC	5° BTDC	15° BTDC	10° BTDC	15° BTDC	

	ITEMS		METRIC / ENGLISH
TRANS-MISSION	Clutch	4/5-speed	Single plate dry, diaphragm spring
		Hondamatic	Torque converter
	Transmission	5-speed	Synchronized 5 forward 1 reverse
		4-speed	Synchronized 4 forward 1 reverse
		Hondamatic	3 forward speeds 1 reverse with torque converter
	Primary Reduction		Direct 1 : 1

Gear Ratio 1500	5-speed	Hondamatic
1st	2.916	1.782
2nd	1.764	1.133
3rd	1.181	0.777
4th	0.846	—
5th	0.714	—
Reverse	2.916	1.954
Final Reduction	4.266	3.588

1300	5-speed		4-speed	Hondamatic
	KS, KX, KC	Others		
1st	2.916	3.272	2.916	1.782
2nd	1.764	1.666	1.764	1.206
3rd	1.181	1.041	1.181	0.828
4th	0.846	0.777	0.846	—
5th	0.714	0.655	—	—
Reverse	2.916	2.916	2.916	1.954
Final Reduction	4.266	4.066	4.266	3.588

1200	4-speed	Hondamatic
1st	2.916	1.782
2nd	1.764	1.206
3rd	1.181	0.828
4th	0.846	—
5th	—	—
Reverse	2.916	1.954
Final Reduction	4.428	3.588

ITEMS	METRIC	ENGLISH
Clutch Lining Area	147 cm²	22.9 sq. in.

*¹ : KS, KX model with Hondamatic

	ITEMS	METRIC	ENGLISH	NOTES
STEERING	Gear Type	Rack and Pinion		
	Overall Ratio	19.5 : 1		
	Turns, lock-to-lock	4.1		
	Steering Wheel Diameter	370 x 360 mm	14.6 x 14.2 in.	1500 Civic S
		377 mm	14.8 in.	Others
SUSPENSION	Type, Front	Independent, Strut, Torsion bar spring		
	Type, Rear	Rigid axle, Trailing arm, Coil spring		
WHEEL ALIGNMENT	Camber Front and Rear	0°/–0°45′		
		0°20′/–0°45′ (KY)		
	Caster	2°20′		
		2°10′ (KY)		
	Toe Front	0 mm	0 in.	
	Rear	IN 2 mm	IN 0.08 in.	
	Steering Axis Inclination	12°50′		
		12°30′		
BRAKES	Type, Front	Self-adjusting power-disc brake		
		Power assisted ventilated disc (1500, KC, KX)		
	Type, Rear	Power assisted drum		
	Lining Surface Area Front/Rear	36/50.2 cm^2	5.6/7.9 sq. in.	
	Effective Disc Diameter	190 mm	7.5 in.	
	Brake Drum I.D.	180 mm	7.1 in.	
	Parking Brake Type	Mechanical expanding, rear two wheel brakes		
TIRES	Size	155-13/6.15-13, P165/70R13, 165/70SR13 (KC)		
		155SR13 (EC-DX, STD)		
		165/70SR13 (EC-S, EXCEPT KW, KS)		
		165SR13 (KY)		
		165/70SR13 (KQ)		
		155SR13, 6.15-13-4PR (KP, KD, KT, KU)		
ELECTRICAL	Battery	12 V – 47 AH		
		12 V – 45 AH (KF, KE)		
		12 V – 40 AH (KQ, KT, KU, KP, KD, KY)		
	Starter	12 V – 1.0 kW, 12 V – 0.8 kW		
	Alternator	12 V – 55 amps		
	Fuses	20 A x 2, 15 A x 4, 10 A x 9		
	Main Fuse	55 A x 1, 45 A x 2		
	Headlights	12 V – 60/55 W		
		12 V – 65/55 W (KC)		
		12 V – 45/40 W (KT, KU, KP, KD, KY)		
	Speedometer/Gauge Illumination Lights	12 V – 3.4 W, 14 V – 1.4 W		
	Front Turn Signal Lights	12 V – 21 W		
		12 V – 32 CP (KC)		
	Position Lights	12 V – 5 W		
	Front Side Marker Lights	12 V – 5 W		
	Rear Side Marker Lights	12 V – 2 CP (KC)		
	Warning Indicator Lights	12 V – 1.4 W		
	Interior Light	12 V – 5 W		
	Rear Turn Signal Lights	12 V – 21 W		
		12 V – 32 CP (KC)		
	Stop/Taillights	12 V – 21/5 W		
		12 V – 32/3 CP (KC)		
	Turn Signal Indicator Lights	12 V – 1.4 W		
	Tail Gate Light	12 V – 3.4 W		
	Back-up Lights	12 V – 21 W		
		12 V – 32 CP (KC)		
	License Lights	12 V – 5 W		
		12 V – 4 CP (KC)		
	Rear Fog Lights	12 V – 21 W (EC)		
	Heater Panel Light	12 V – 1.4 W		

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Design Specifications (cont'd)

4 D

	ITEMS		METRIC	ENGLISH	NOTES
DIMENSIONS	Overall Length		4,145 mm	163.2 in.	
	Overall Width	1500	1,630 mm	64.2 in.	
			1,625 mm (KC)	63.9 in.	
		1200/1300	1,625 mm	64.0 in.	
	Overall Height		1,385 mm	54.5 in.	
	Wheelbase		2,450 mm	96.5 in.	
	Tread F/R		1,400/1,415 mm	55.1/55.7 in.	
	Ground Clearance		165 mm	6.3 in.	
	Seating Capacity		5		
	Overhang F/R		795/900 mm	31.3/35.4 in.	Includes bumper
WEIGHTS	Engine Weight	1500	107 kg	236 lb.	Excludes transmission
	(Wet)	1300	98.6 kg	217.4 lb.	
	Curb Weight	1500			
		5-speed	845 kg (KX)	1,863 lb.	
			850 kg (KW,KS)	1,874 lb.	
			865 kg (KQ)	1,907 lb.	
			874 kg (KC)	1,927 lb.	
		Hondamatic	860 kg (KX)	1,896 lb.	
			865 kg (KW,KS)	1,907 lb.	
			880 kg (KQ)	1,940 lb.	
			889 kg (KC)	1,960 lb.	
		1300			
		5-speed	815 kg (KX)	1,797 lb.	
			820 kg (KW,KS)	1,808 lb.	
		Hondamatic	830 kg (KX)	1,830 lb.	
			835 kg (KW,KS)	1,841 lb.	
		1200			
		4-speed	810 kg (KP,KT,KU)	1,786 lb.	
		Hondamatic	825 kg (KP,KT,KU)	1,819 lb.	
	Weight Distribution	1500			
	(F/R)	5-speed	500/345 kg (KX)	1,102/761 lb.	
			505/345 kg (KW,KS)	1,113/761 lb.	
			517/357 kg (KC)	1,140/787 lb.	
		Hondamatic	515/345 kg (KX)	1,135/761 lb.	
			520/345 kg (KW,KS)	1,146/761 lb.	
			534/355 kg (KC)	1,177/783 lb.	
		1300			
		5-speed	480/335 kg (KX)	1,058/739 lb.	
			485/335 kg (KW,KS)	1,069/739 lb.	
		Hondamatic	495/335 kg (KX)	1,091/739 lb.	
			500/335 kg (KW,KS)	1,102/739 lb.	
		1200			
		4-speed	480/330 kg (KP,KT,KU)	1,058/728 lb.	Curb weight
		Hondamatic	495/330 kg (KP,KT,KU)	1,091/728 lb.	+ A/C—22 kg (49 lb.)
	Max. permissible weight (EC)		1,300 kg	2,866 lb.	+ Cargo—25 kg (55 lb.)
			1,240 kg (KS)	2,734 lb.	+ Passengers —70 kg x 5
	Gross Vehicle Weight Rating				(154 lb. x 5)
	(MVSS)		1,320 kg	2,910 lb.	+ Tolerance
	Carrying (loading) Weight Capacity		25 kg	55 lb.	= G.V.W.R.
CAPACITIES	Engine Oil:				
	drain and refill (with filter)		3.5 ℓ	3.7 US qt, 3.1 Imp qt	
	initial fill		4.0 ℓ	4.2 US qt, 3.4 Imp qt	
	Transmission Oil:				
	drain and refill		2.3 ℓ	2.4 US qt, 2.0 Imp qt	
	initial fill		2.5 ℓ	2.6 US qt, 2.2 Imp qt	
	Hondamatic Fluid:				
	transmission		2.8 ℓ	3.0 US qt, 2.5 Imp qt	
	system		5.4 ℓ	5.7 US qt, 4.8 Imp qt	
	Fuel Tank		46 ℓ	12.1 US gal, 10.1 Imp gal	
	Cooling System/	1500	5.2/4.2 ℓ (KC,KW,KS,KX)	5.5/4.4 US qt, 4.6/3.7 Imp qt	
	Drain and Refill		5.5/4.5 ℓ	5.8/4.8 US qt, 4.8/4.0 Imp qt	
	Radiator		(KQ,KY,KP,KD,KT,KU)		
		1300			
		5-speed	4.4/3.4 ℓ (KF,KW,KS,KE,KX)	4.7/3.6 US qt, 3.9/3.0 Imp qt	
			4.9/3.9 ℓ (KT,KU)	5.2/4.1 US qt, 4.3/3.4 Imp qt	
		4-speed	5.2/4.2 ℓ (KP,KD,KT,KU)	5.5/4.4 US qt, 4.6/3.7 Imp qt	
		Hondamatic	4.9/3.9 ℓ (KF,KW,KS,KE,KX)	5.2/4.1 US qt, 4.3/3.4 Imp qt	
			5.2/4.2 ℓ (KP,KD,KT,KU)	5.5/4.4 US qt, 4.6/3.7 Imp qt	
		1200			
		4-speed	5.2/4.2 ℓ (KP,KT,KU)	5.5/4.4 US qt, 4.6/3.7 Imp qt	
		Hondamatic	4.9/3.9 ℓ (KP,KT,KU)	5.2/4.1 US qt, 4.3/3.4 Imp qt	

	ITEMS		METRIC	ENGLISH	NOTES
ENGINE	Type		Water cooled, 4-cycle O.H.C.		
	Cylinder Arrangement		4-cylinder in-line, transverse		
	Bore and Stroke	1500	74 x 86.5 mm	2.91 x 3.41 in.	
		1300	74 x 78 mm	2.91 x 3.07 in.	
		1200	74 x 69 mm	2.91 x 2.72 in.	
	Compression Ratio	1500	8.7 : 1 9.2 : 1 (KC)		
		1300	8.7 : 1		
		1200	8.2 : 1		
	Displacement	1500	1,488 cm³	91 cu in.	
		1300	1,342 cm³	82 cu in.	
		1200	1,187 cm³	72 cu in.	
	Valve Train		Timing belt driven, single overhead camshaft		
	Lubrication System		Trochoid pump		
	Fuel Required		Low-lead or regular grade gasoline with 91 Research Octane number or higher.		

	Valve Timing		1500		1300		1200	NOTES
ENGINE	Intake	OPEN	10° ATDC *[1]	10° ATDC	15° ATDC *[1]	10° ATDC	15° ATDC	OPEN measurement begins
		CLOSE	20° ABDC	20° ABDC	15° ABDC	15° ABDC	15° ABDC	CLOSE measurement ends at point where valve reaches 1 mm lift.
	Exhaust	OPEN	25° BBDC	25° BBDC	20° BBDC	20° BBDC	15° BBDC	
		CLOSE	10° BTDC	5° BTDC	15° BTDC	10° BTDC	15° BTDC	

	ITEMS		METRIC / ENGLISH	NOTES
TRANSMISSION	Clutch	4/5-speed	Single plate dry, diaphragm spring	
		Hondamatic	Torque converter	
	Transmission	5-speed	Synchronized 5 forward 1 reverse	
		4-speed	Synchronized 4 forward 1 reverse	
		Hondamatic	3 forward speeds 1 reverse with torque converter	
	Primary Reduction		Direct 1 : 1	

Gear Ratio 1500	5-speed	Hondamatic
1st	2.916	1.782
2nd	1.764	1.133
3rd	1.181	0.777
4th	0.846	–
5th	0.714	–
Reverse	2.916	1.954
Final Reduction	4.266	3.588

1300	5-speed	4-speed	Hondamatic
1st	2.916	2.916	1.782
2nd	1.764	1.764	1.206
3rd	1.181	1.181	0.828
4th	0.846	0.846	–
5th	0.714	–	–
Reverse	2.916	2.916	1.954
Final Reduction	4.428	4.428	3.588

1200	4-speed	Hondamatic
1st	2.916	1.782
2nd	1.764	1.206
3rd	1.181	0.828
4th	0.846	–
Reverse	2.916	1.954
Final Reduction	4.642	3.588

	ITEMS		METRIC	ENGLISH	NOTES
TRANSMISSION	Clutch Lining Area		147 cm²	22.9 sq. in.	
STEERING	Gear Type		Rack and Pinion		
	Overall Ratio		19.5 : 1		
	Turns, lock-to-lock		4.1		
	Steering Wheel Diameter		377 mm	14.8 in.	
SUSPENSION	Type, Front		Independent, Strut, Torsion bar spring		
	Type, Rear		Rigid axle, Trailing arm, Coil spring		
WHEEL ALIGNMENT	Camber	Front and Rear	0°/–0°45′ 0°30′/–0°45′ (KY)		
	Caster		2°20′ 2°15′ (KY)		
	Toe		0 mm IN 2 mm	0 in. IN 0.08 in.	
	Steering Axis Inclination		12°50′ 12°15′ (KY)		
BRAKES	Type, Front		Self-adjusting power-disc brake Power assisted ventilated disc (1500 KC, KX)		
	Type, Rear		Power assisted drum		
	Lining Surface Area Front/Rear		36/50.2 cm²	5.6/7.9 sq. in.	
	Effective Disc Diameter		190 mm	7.5 in.	
	Brake Drum I.D.		180 mm	7.1 in.	
	Parking Brake Type		Mechanical expanding, rear two wheel brakes		

*[1]: KS, KX model with Hondamatic

(cont'd)

Design Specifications (cont'd)

4 D

	ITEMS	METRIC	ENGLISH	NOTES
TIRES	Size	165/70SR13 (KC, 1500 KX) 155SR13 (KF, KS, KW, KX, KE) 165SR13 (KY) 165/70SR13 (KQ) 155SR13, 6.15-13-4PR (KP, KD, KT, KU)		
ELECTRICAL	Battery	12 V – 47 AH 12 V – 45 AH (KE) 12 V – 40 AH (KQ, KT, KU, KP, KD, KY)		
	Starter	12 V – 1.4 kW, 12 V – 1.0 kW, 12 V – 0.8 kW		
	Alternator	12 V – 55 amps		
	Fuses	20 A x 2, 15 A x 4, 10 A x 9		
	Main Fuse	55 A x 1, 45 A x 2		
	Headlights	12 V – 60/55 W 12 V – 65/55 W (KC) 12 V – 45/40 W (KT, KU, KP, KD, KY)		
	Speedometer/Gauge Illumination Lights	12 V – 3.4 W, 14 V – 1.4 W		
	Front Turn Signal Lights	12 V – 21 W 12 V – 32 CP (KC)		
	Position Lights	12 V – 5 W		
	Front Side Marker Lights	12 V – 5 W		
	Rear Side Marker Lights	12 V – 2 CP (KC)		
	Warning Indicator Lights	12 V – 1.4 W		
	Interior Light	12 V – 5 W		
	Rear Turn Signal Lights	12 V – 21 W 12 V – 32 CP (KC)		
	Stop/Taillights	12 V – 21/5 W 12 V – 32/3 CP (KC)		
	Turn Signal Indicator Lights	12 V – 1.4 W		
	Tail Gate Light	12 V – 3.4 W		
	Back-up Lights	12 V – 21 W 12 V – 32 CP (KC)		
	License Lights	12 V – 5 W 12 V – 4 CP (KC)		
	Rear Fog Lights	12 V – 21 W (EC)		
	Heater Panel Light	12 V – 1.4 W		

4D H/B

	ITEMS	METRIC	ENGLISH	NOTES
DIMENSIONS	Overall Length	3,990 mm	157.1 in.	
	Overall Width	1,650 mm	65.0 in.	
		1,625 mm (KQ)	63.9 in.	
		1,624 mm (KC)	63.9 in.	
	Overall Height	1,490 mm	58.7 in.	
		1,480 mm (KC)	58.3 in.	
	Wheelbase	2,450 mm	96.5 in.	
	Tread F/R	1,400/1,415 mm	55.1/55.7 in.	
	Ground Clearance	165 mm	6.5 in.	
		175 mm (KY)	6.9 in.	
	Seating Capacity	5		
	Overhang F/R	745/795 mm	29.3/31.3 in.	Includes bumper
WEIGHTS	Engine Weight (Wet)	107 kg	236 lb.	Excludes transmission
	Curb Weight 5-speed	875 kg (KP,KD,KT,KU)	1,929 lb.	
		885 kg (KF,KG,KB,KX)	1,951 lb.	
		890 kg (KW,KS,KE)	1,962 lb.	
		900 kg (KY)	1,984 lb.	
		905 kg (KQ)	1,995 lb.	
		911 kg (KC)	2,008 lb.	
	Hondamatic	890 kg (KP,KD,KT,KU)	1,962 lb.	
		900 kg (KF,KG,KB,KX)	1,984 lb.	
		905 kg (KW,KS,KE)	1,995 lb.	
		915 kg (KY)	2,017 lb.	
		920 kg (KQ)	2,028 lb.	
		927 kg (KC)	2,044 lb.	
	Weight Distribution (F/R) 5-speed	505/370 kg (KP,KD,KT,KU)	1,113/816 lb.	
		505/380 kg (KF,KG,KB,KX)	1,113/838 lb.	
		510/380 kg (KW,KS)	1,124/838 lb.	
		505/385 kg (KE)		
		515/385 kg (KY)	1,135/849 lb.	
		520/385 kg (KQ)	1,146/849 lb.	
		530/381 kg (KC)	1,168/840 lb.	Curb weight +A/C—22 kg (49 lb.) +Cargo—45 kg (100 lb.) +Passengers—70 kg x 5 (154 lb.) x 5 +Sun roof—20 kg (44 lb.) +Tolerance =G.V.W.R.
	Hondamatic	520/370 kg (KP,KD,KT,KU)	1,146/816 lb.	
		520/380 kg (KF,KG,KB,KX)	1,146/838 lb.	
		525/380 kg (KW,KS)	1,157/838 lb.	
		520/385 kg (KE)		
		530/385 kg (KY)	1,168/849 lb.	
		535/385 kg (KQ)	1,179/849 lb.	
		548/379 kg (KC)	1,208/836 lb.	
	Max. permissible weight (EC)	1,365 kg	3,009 lb.	
	Gross Vehicle Weight Rating (MVSS)	1,300 kg (KS)	2,866 lb.	
		1,365 kg	3,010 lb.	
	Carrying (loading) Weight Capacity	45 kg	100 lb.	
CAPACITIES	Engine Oil:			
	drain and refill (with filter)	3.5 ℓ	3.7 US qt, 3.1 Imp qt	
	initial fill	4.0 ℓ	4.2 US qt, 3.4 Imp qt	
	Transmission Oil:			
	drain and refill	2.3 ℓ	2.4 US qt, 2.0 Imp qt	
	initial fill	2.5 ℓ	2.6 US qt, 2.2 Imp qt	
	Hondamatic Fluid:			
	transmission	2.8 ℓ	3.0 US qt, 2.5 Imp qt	
	system	5.4 ℓ	5.7 US qt, 4.8 Imp qt	
	Fuel Tank	46 ℓ	12.1 US gal, 10.1 Imp gal	
	Cooling System/Drain and Refill Radiator	5.1/4.1 ℓ (KC,KF,KG,KB,KW, KS,KE,KX)	5.5/4.4 US qt, 4.6/3.7 Imp qt	
		5.5/4.5 ℓ (KQ,KY,KP,KD,KT, KU)	5.8/4.8 US qt, 4.8/4.0 Imp qt	
ENGINE	Type	Water cooled, 4-cycle O.H.C.		
	Cylinder Arrangement	4-cylinder in-line, transverse		
	Bore and Stroke	74 x 86.5 mm	2.91 x 3.4 in.	
	Compression Ratio	8.7 : 1 9.2 : 1 (KC)		
	Displacement	1,488 cm^3	91 cu in.	
	Valve Train	Timing belt driven, single overhead camshaft		
	Lubrication System	Trochoid pump		
	Fuel Required	Low-lead or regular grade gasoline with 91 Research Octane number or higher.		
	Valve Timing			
	Intake OPEN	10° ATDC	*1 10° ATDC	OPEN measurement beings CLOSE measurement ends at point where valve reaches 1 mm lift.
	CLOSE	20° ABDC	20° ABDC	
	Exhaust OPEN	25° BBDC	25° BBDC	
	CLOSE	10° BTDC	5° BTDC	

*1 : KS, KX model with Hondamatic

(cont'd)

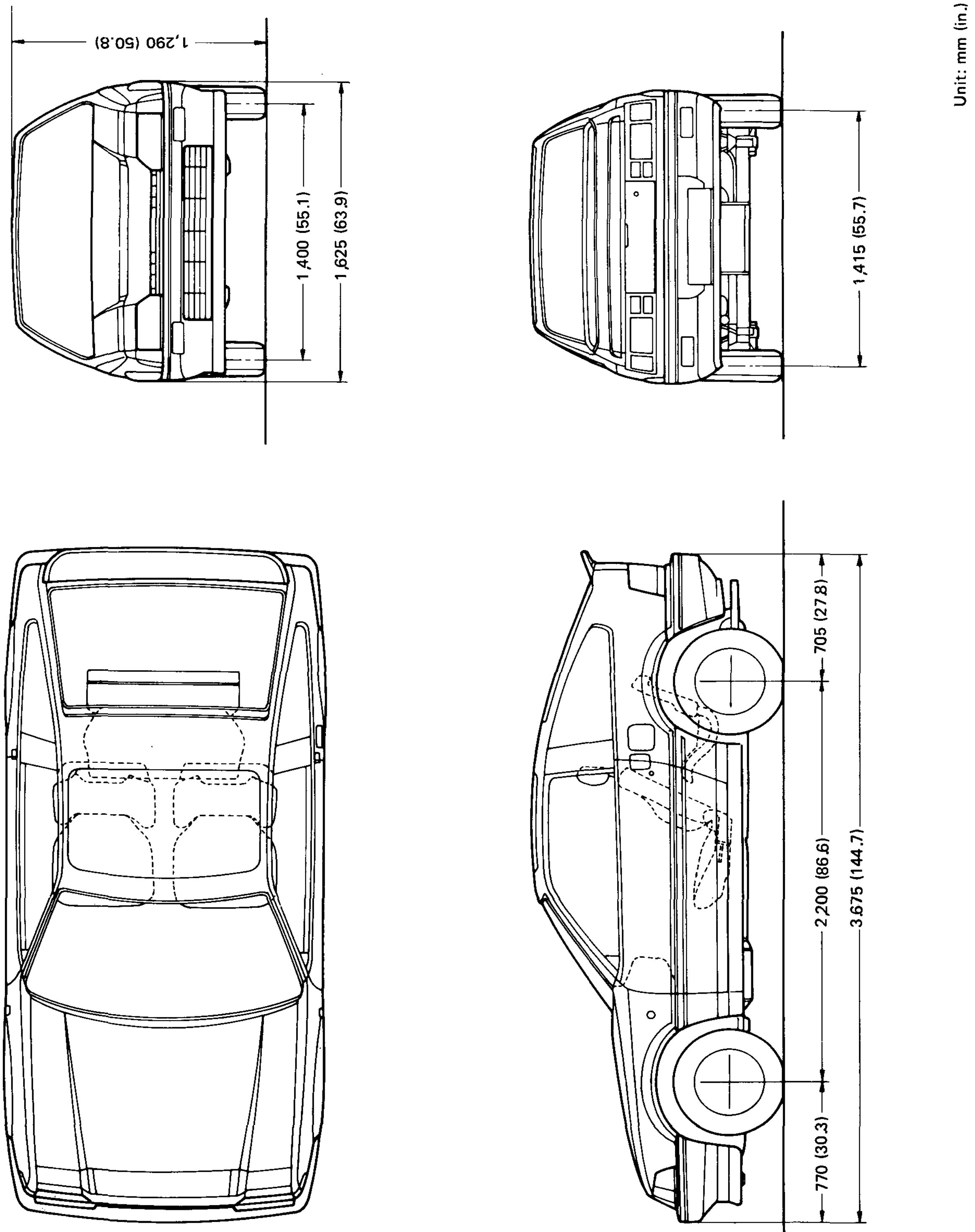
Design Specifications (cont'd)

4D H/B

<table>
<tr><th></th><th colspan="2">ITEMS</th><th colspan="3">METRIC</th><th colspan="3">ENGLISH</th><th>NOTES</th></tr>
<tr><td>TRANSMISSION</td><td>Clutch</td><td>5-speed</td><td colspan="6">Single plate dry, diaphragm spring</td><td></td></tr>
<tr><td></td><td></td><td>Hondamatic</td><td colspan="6">Torque converter</td><td></td></tr>
<tr><td></td><td>Transmission</td><td>5-speed</td><td colspan="6">Synchronized 5 forward 1 reverse</td><td></td></tr>
<tr><td></td><td></td><td>Hondamatic</td><td colspan="6">3 forward speeds 1 reverse with torque converter</td><td></td></tr>
<tr><td></td><td>Primary Reduction</td><td></td><td colspan="6">Direct 1 : 1</td><td></td></tr>
<tr><td></td><td>Gear Ratio</td><td></td><td colspan="3">5-speed</td><td colspan="3">Hondamatic</td><td></td></tr>
<tr><td></td><td></td><td>1st</td><td colspan="3">3.181</td><td colspan="3">1.782</td><td></td></tr>
<tr><td></td><td></td><td>2nd</td><td colspan="3">1.823</td><td colspan="3">1.133</td><td></td></tr>
<tr><td></td><td></td><td>3rd</td><td colspan="3">1.181</td><td colspan="3">0.777</td><td></td></tr>
<tr><td></td><td></td><td>4th</td><td colspan="3">0.846</td><td colspan="3">–</td><td></td></tr>
<tr><td></td><td></td><td>5th</td><td colspan="3">0.714</td><td colspan="3">–</td><td></td></tr>
<tr><td></td><td></td><td>Reverse</td><td colspan="3">2.916</td><td colspan="3">1.954</td><td></td></tr>
<tr><td></td><td></td><td>Final Reduction</td><td colspan="3">4.266</td><td colspan="3">3.588</td><td></td></tr>
<tr><td></td><td>Clutch Lining Area</td><td></td><td colspan="3">147 cm^2</td><td colspan="3">22.9 sq in.</td><td></td></tr>
<tr><td>STEERING</td><td>Gear Type</td><td></td><td colspan="6">Rack and Pinion</td><td></td></tr>
<tr><td></td><td>Overall Ratio</td><td></td><td colspan="6">19.6
19.0 : 1 (KC)</td><td></td></tr>
<tr><td></td><td>Turns, lock-to-lock</td><td></td><td colspan="6">4.11
4.01 (KC)</td><td></td></tr>
<tr><td></td><td>Steering Wheel Diameter</td><td></td><td colspan="3">377 mm</td><td colspan="3">14.8 in.</td><td></td></tr>
<tr><td>SUSPENSION</td><td>Type, Front</td><td></td><td colspan="6">Independent, Strut, Torsion bar spring</td><td></td></tr>
<tr><td></td><td>Type, Rear</td><td></td><td colspan="6">Rigid axle, Trailing arm, Coil spring</td><td></td></tr>
<tr><td>WHEEL ALIGNMENT</td><td></td><td></td><td colspan="2">European model</td><td colspan="2">Canadian model</td><td colspan="2">Others</td><td></td></tr>
<tr><td></td><td>Camber</td><td>Front and Rear</td><td colspan="2">0°26′/–0°45′</td><td colspan="2">0°20′/–0°45′</td><td colspan="2">0°30′/–0°45′</td><td></td></tr>
<tr><td></td><td>Caster</td><td></td><td colspan="2">1°49′</td><td colspan="2">2°05′</td><td colspan="2">2°00′</td><td></td></tr>
<tr><td></td><td>Toe</td><td>Front</td><td colspan="6">0 mm (0 in.)</td><td></td></tr>
<tr><td></td><td></td><td>Rear</td><td colspan="6">IN 2 mm (0.08 in.)</td><td></td></tr>
<tr><td></td><td>Steering Axis Inclination</td><td></td><td colspan="2">11°54′</td><td colspan="2">12°00′</td><td colspan="2">11°45′</td><td></td></tr>
<tr><td>BRAKES</td><td>Type, Front</td><td></td><td colspan="6">Self-adjusting power-disc brake
Power assisted ventilated disc (KC,KX,KY)</td><td></td></tr>
<tr><td></td><td>Type, Rear</td><td></td><td colspan="6">Power assisted drum</td><td></td></tr>
<tr><td></td><td>Lining Surface Area Front/Rear</td><td></td><td colspan="3">35.3/57.6 cm^2
36.0/57.6 cm^2 (KX)</td><td colspan="3">5.5/8.9 sq in.
5.6/8.9 sq in.</td><td></td></tr>
<tr><td></td><td>Effective Disc Diameter</td><td></td><td colspan="3">190 mm</td><td colspan="3">7.5 in.</td><td></td></tr>
<tr><td></td><td>Brake Drum I.D.</td><td></td><td colspan="3">200 mm</td><td colspan="3">7.9 in.</td><td></td></tr>
<tr><td></td><td>Parking Brake Type</td><td></td><td colspan="6">Mechanical expanding, rear two wheel brakes</td><td></td></tr>
<tr><td>TIRES</td><td>Size</td><td></td><td colspan="6">P175/70R13 (KC)
155SR13 (KF,KG,KB,KX,KS,KW,KE)
165SR13 (KY)
175/70SR13 (KQ)
6.15-13-4PR (KP,KD,KT,KU)</td><td></td></tr>
<tr><td>ELECTRICAL</td><td>Battery</td><td></td><td colspan="6">12 V–47 AH
12 V–45 AH (KF,KE)
12 V–40 AH (KQ,KT,KU,KP,KD,KY)</td><td></td></tr>
<tr><td></td><td>Starter</td><td></td><td colspan="6">12 V–1.4 KW, 12 V–1.0 KW, 12 V–0.8 KW</td><td></td></tr>
<tr><td></td><td>Alternator</td><td></td><td colspan="6">12 V–55 amps</td><td></td></tr>
<tr><td></td><td>Fuses</td><td></td><td colspan="6">20 A x 2, 15 A x 5, 10 A x 10, 10 A x 8 (KC)</td><td></td></tr>
<tr><td></td><td>Main Fuse</td><td></td><td colspan="6">55 A x 1, 45 A x 2</td><td></td></tr>
<tr><td></td><td>Headlights</td><td></td><td colspan="6">12 V–60/55 W
12 V–65/55 W (KC)
12 V–45/40 W (KT,KU,KP,KD,KY)</td><td></td></tr>
<tr><td></td><td>Speedometer/Gauge Illumination Lights</td><td></td><td colspan="6">14 V–3.4 W, 14 V–1.4 W (Nippon Seiki)
13 V–3.4 W, 13 V–1.4 W (Nippon Denso)</td><td></td></tr>
<tr><td></td><td>Front Turn Signal Lights</td><td></td><td colspan="6">12 V–21 W
12 V–32 CP (KC)</td><td></td></tr>
<tr><td></td><td>Position Lights</td><td></td><td colspan="6">12 V–5 W</td><td></td></tr>
<tr><td></td><td>Front Side Marker Lights</td><td></td><td colspan="6">12 V–5 W (KC)</td><td></td></tr>
<tr><td></td><td>Rear Side Marker Lights</td><td></td><td colspan="6">12 V–2 CP (KC)</td><td></td></tr>
<tr><td></td><td>Warning Indicator Lights</td><td></td><td colspan="6">14 V–1.4 W, 13 V–1.4 W</td><td></td></tr>
<tr><td></td><td>Interior Light</td><td></td><td colspan="6">12 V–5 W</td><td></td></tr>
<tr><td></td><td>Rear Turn Signal Lights</td><td></td><td colspan="6">12 V–21 W
12 V–32 CP (KC)</td><td></td></tr>
<tr><td></td><td>Stop/Taillights</td><td></td><td colspan="6">12 V–21/5 W
12 V–32/3 CP (KC)</td><td></td></tr>
<tr><td></td><td>Turn Signal Indicator Lights</td><td></td><td colspan="6">14 V–1.4 W, 13 V–1.4 W</td><td></td></tr>
<tr><td></td><td>Trunk Light</td><td></td><td colspan="6">12 V–3.4 W
12 V–5 W (KC)</td><td></td></tr>
<tr><td></td><td>Back-up Lights</td><td></td><td colspan="6">12 V–21 W
12 V–32 CP (KC)</td><td></td></tr>
<tr><td></td><td>License Lights</td><td></td><td colspan="6">12 V–5 W
12 V–4 CP (KC)</td><td></td></tr>
<tr><td></td><td>Rear Fog Lights</td><td></td><td colspan="6">12 V–21 W (EC)</td><td></td></tr>
<tr><td></td><td>Heater Panel Light</td><td></td><td colspan="6">12 V–1.4 W</td><td></td></tr>
</table>

Body Specifications

Coupe


Unit: mm (in.)
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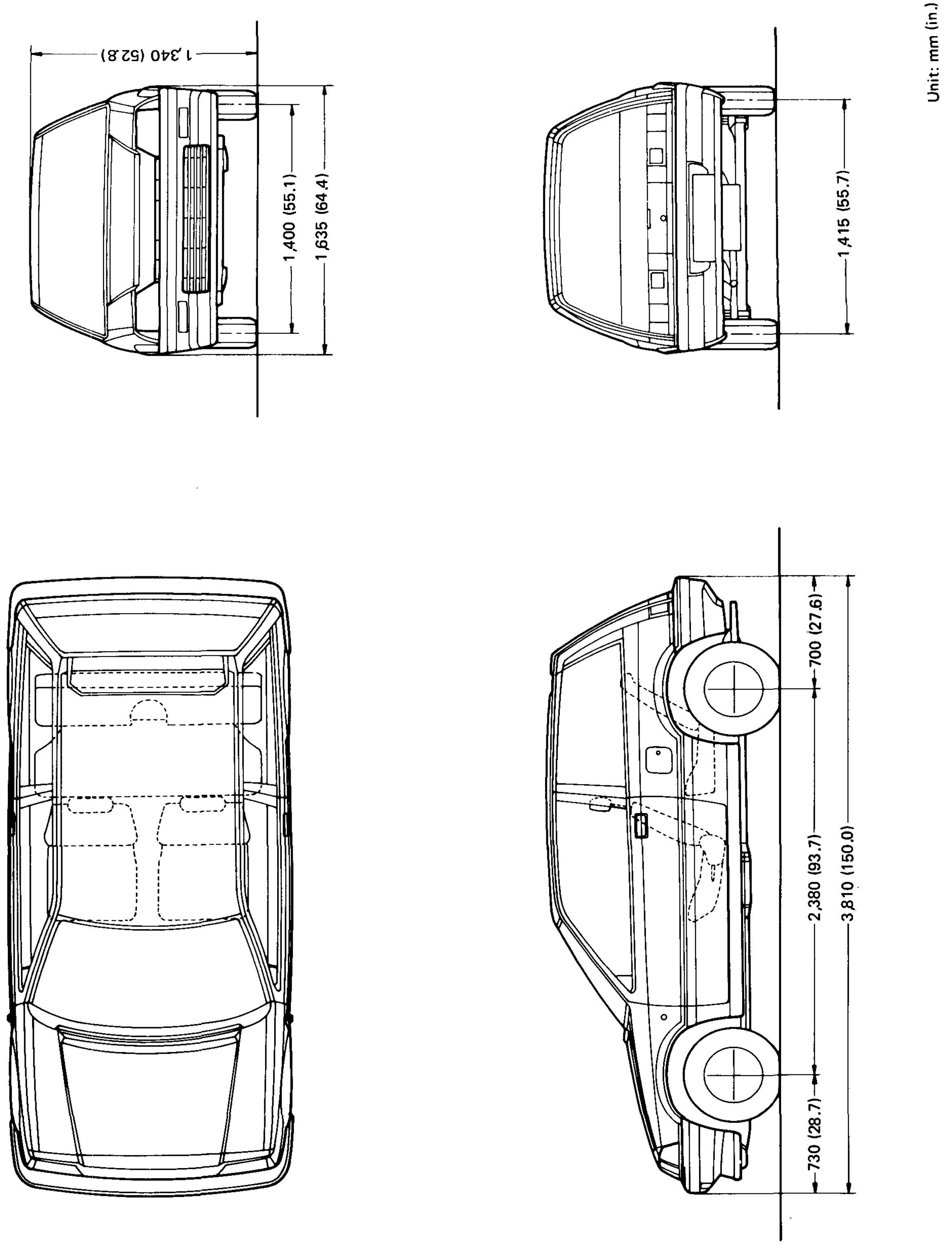
1,400 (55.1)
1,625 (63.9)
1,415 (55.7)
705 (27.8)
2,200 (86.6)
3,675 (144.7)
770 (30.3)

(cont'd)

Body Specifications (cont'd)

2D H/B


Unit: mm (in.)
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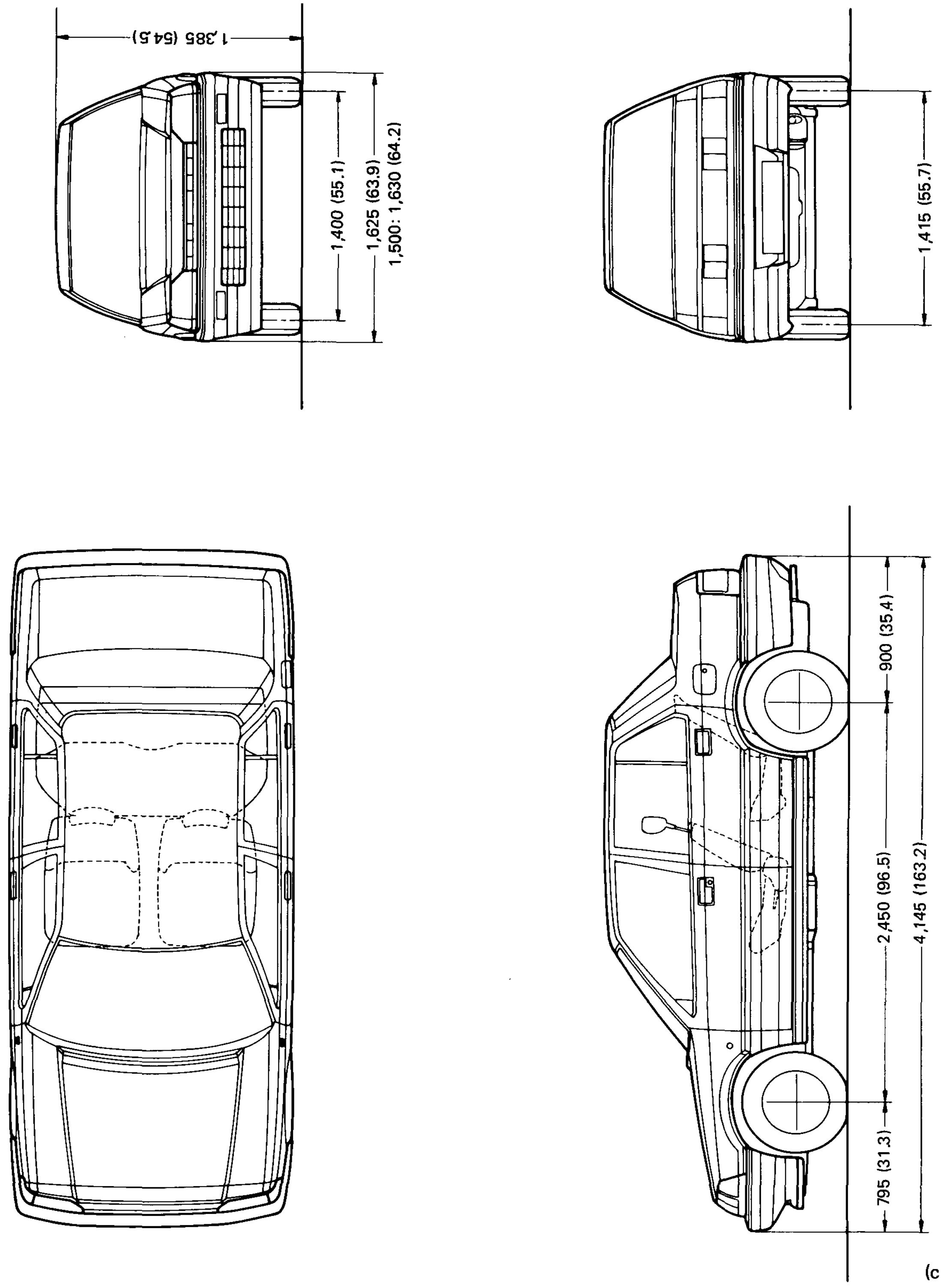
1,400 (55.1)
1,635 (64.4)
1,415 (55.7)
700 (27.6)
2,380 (93.7)
3,810 (150.0)
730 (28.7)

4D

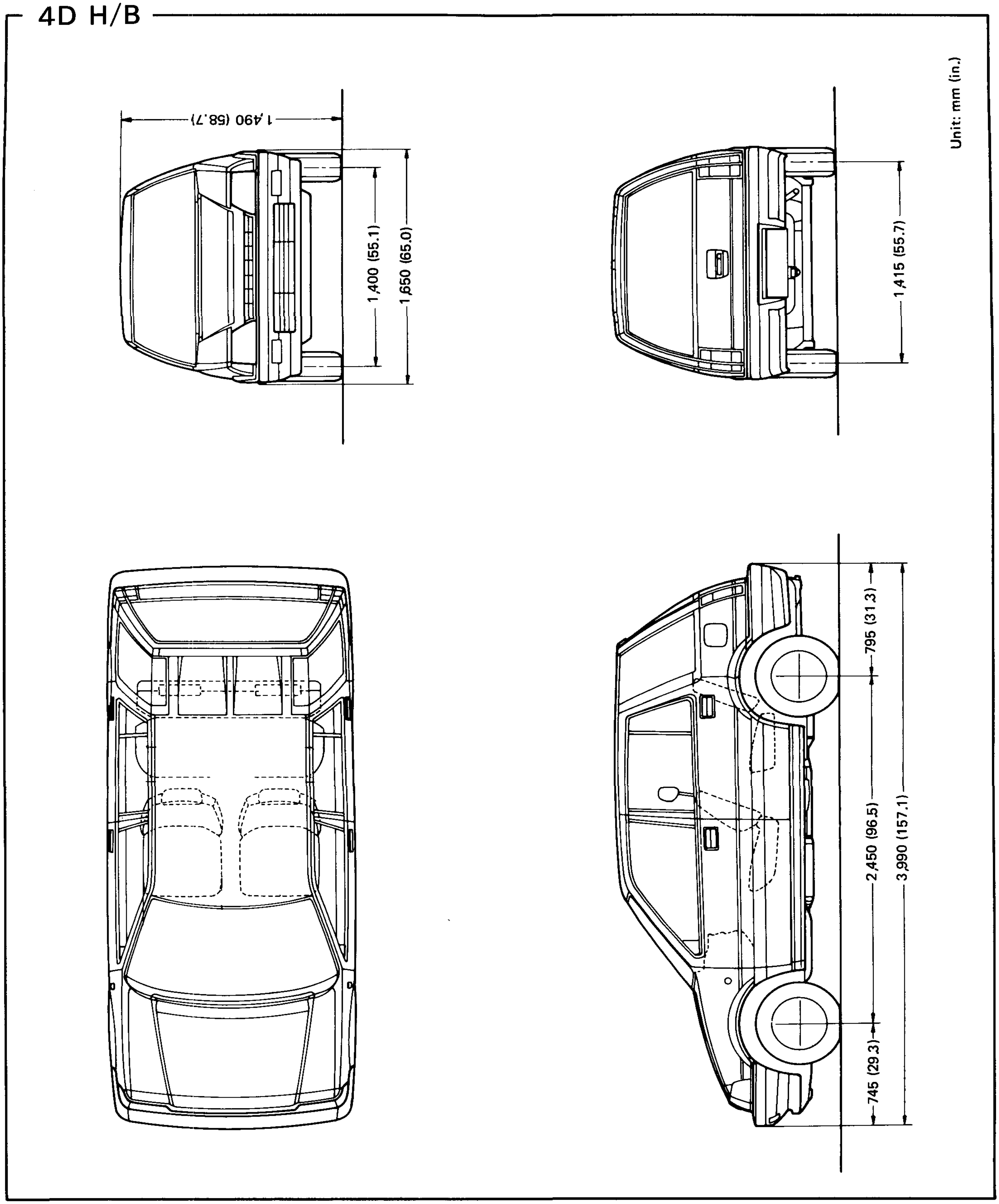

1,385 (54.5)
1,400 (55.1)
1,625 (63.9)
1,500: 1,630 (64.2)
1,415 (55.7)
900 (35.4)
2,450 (96.5)
4,145 (163.2)
795 (31.3)

Unit: mm (in.)

(cont'd)

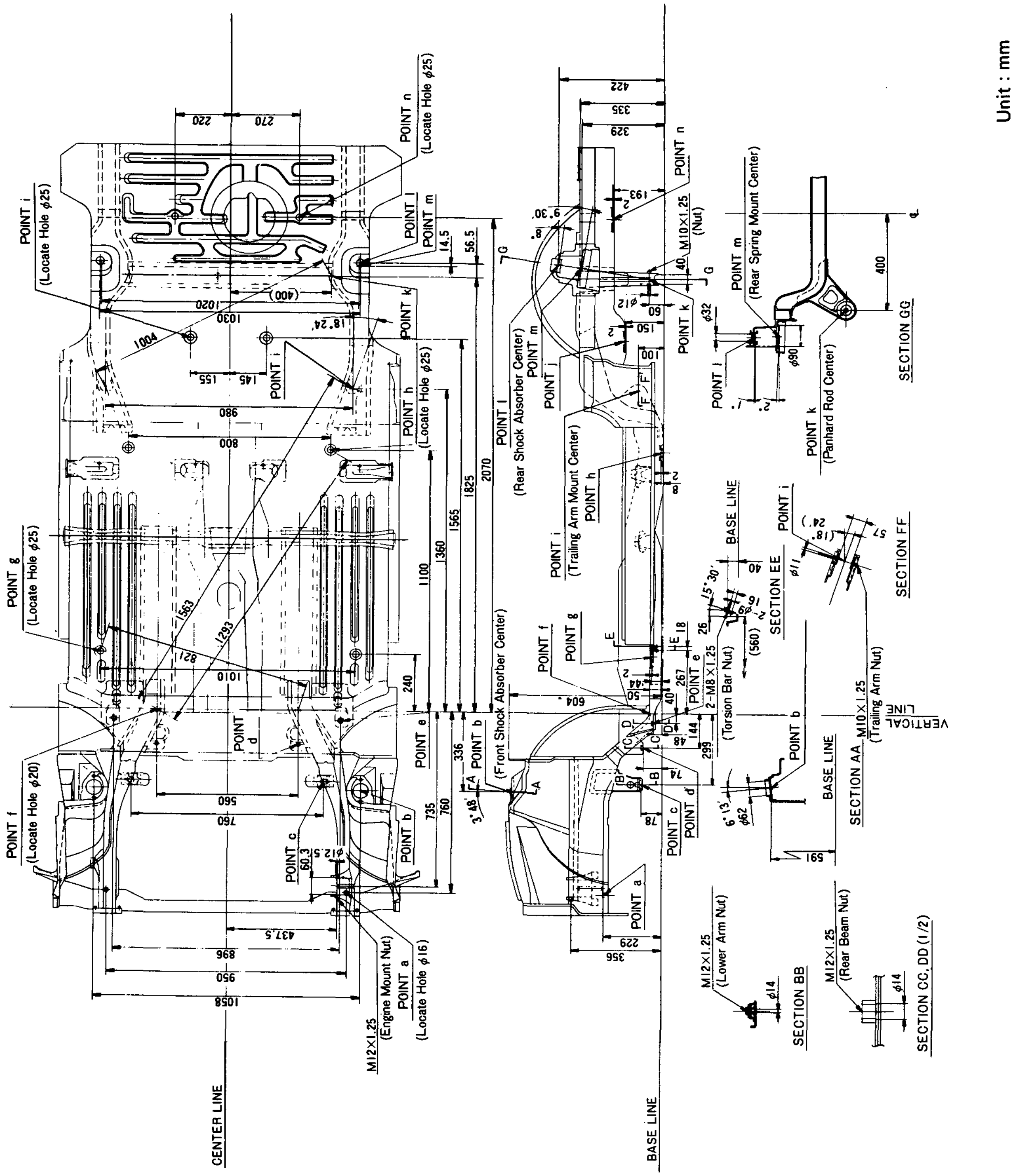
Body Specifications (cont'd)

4D H/B


Unit: mm (in.)
1,490 (58.7)
1,400 (55.1)
1,650 (65.0)
1,415 (55.7)
795 (31.3)
2,450 (96.5)
3,990 (157.1)
745 (29.3)

Frame Repair Chart

Coupe

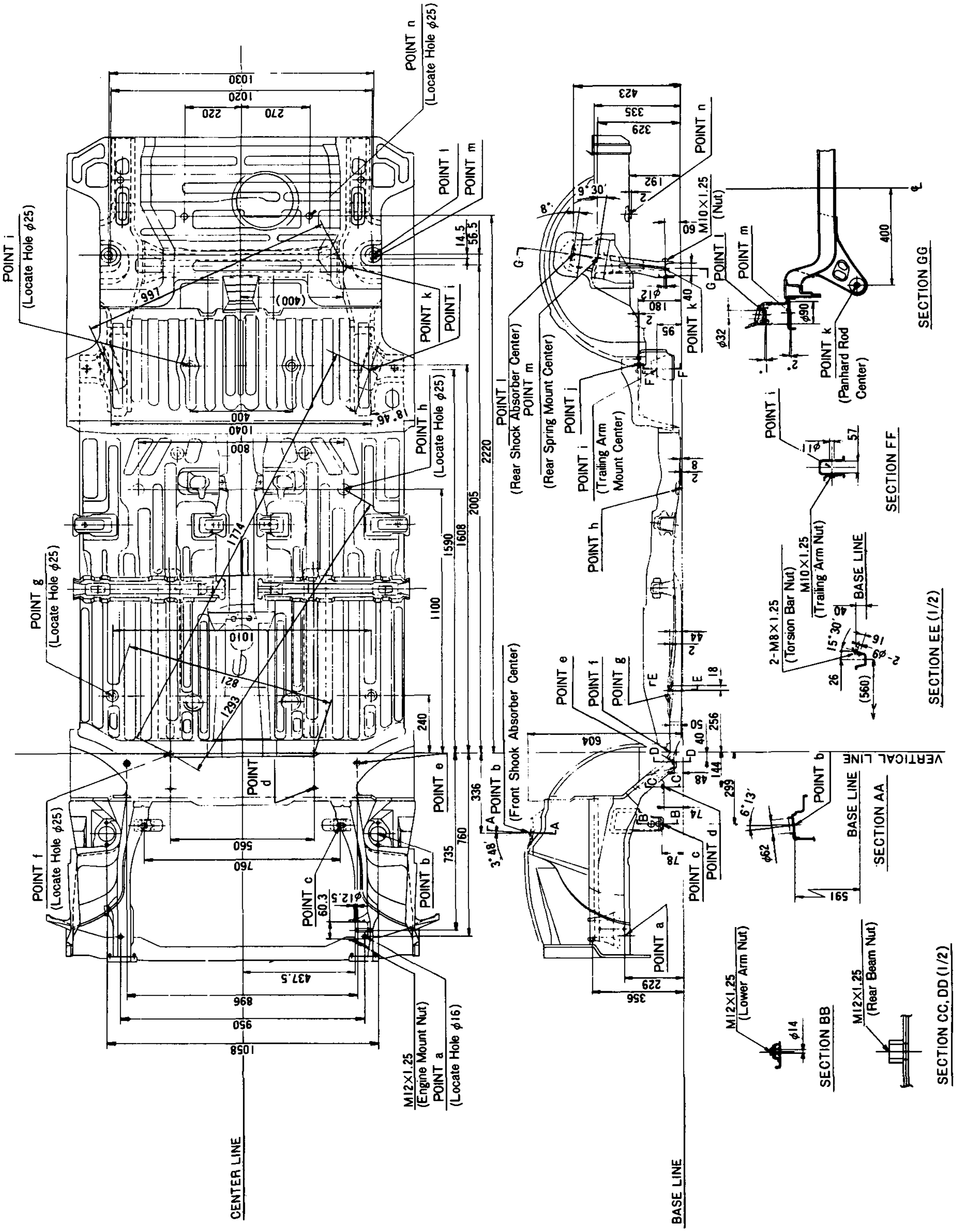

Unit : mm
POINT n (Locate Hole ϕ25)
POINT i (Locate Hole ϕ25)
POINT l
POINT m
POINT k
POINT i
POINT h (Locate Hole ϕ25)
POINT g (Locate Hole ϕ25)
POINT f (Locate Hole ϕ20)
POINT d
POINT c
POINT b
POINT e
POINT a (Locate Hole ϕ16)
M12×1.25 (Engine Mount Nut)
CENTER LINE
BASE LINE
220
270
1020
(400)
1030
1004
18°24'
155
145
980
800
1563
1293
821
1010
560
760
ϕ12.5
60.3
437.5
896
950
1058
14.5
56.5
2070
1825
1565
1360
1100
240
336
735
760
POINT l (Rear Shock Absorber Center)
POINT m
POINT j
POINT i (Trailing Arm Mount Center)
POINT h
POINT f
POINT g
POINT b (Front Shock Absorber Center)
POINT c
POINT d
POINT a
POINT n
POINT k
POINT e
422
335
329
193
2
9°30'
8°
G
M10×1.25 (Nut)
40
ϕ12
60
150
100
F
2
8
E
18
26
267
40
50
44
604
144
48
299
74
78
3°48'
A
B
C
D
2-M8×1.25 (Torsion Bar Nut)
VERTICAL LINE
M10×1.25 (Trailing Arm Nut)
229
356
POINT m (Rear Spring Mount Center)
ϕ32
ϕ90
POINT l
1°
2°
400
℄
POINT k (Panhard Rod Center)
SECTION GG
BASE LINE
40
15°30'
16
6°
2°
(560)
SECTION EE
POINT i
24'
18°
57
ϕ11
SECTION FF
POINT b
6°13'
ϕ62
591
BASE LINE
SECTION AA
M12×1.25 (Lower Arm Nut)
ϕ14
SECTION BB
M12×1.25 (Rear Beam Nut)
ϕ14
SECTION CC, DD (1/2)

(cont'd)

Frame Repair Chart(cont'd)

2D H/B

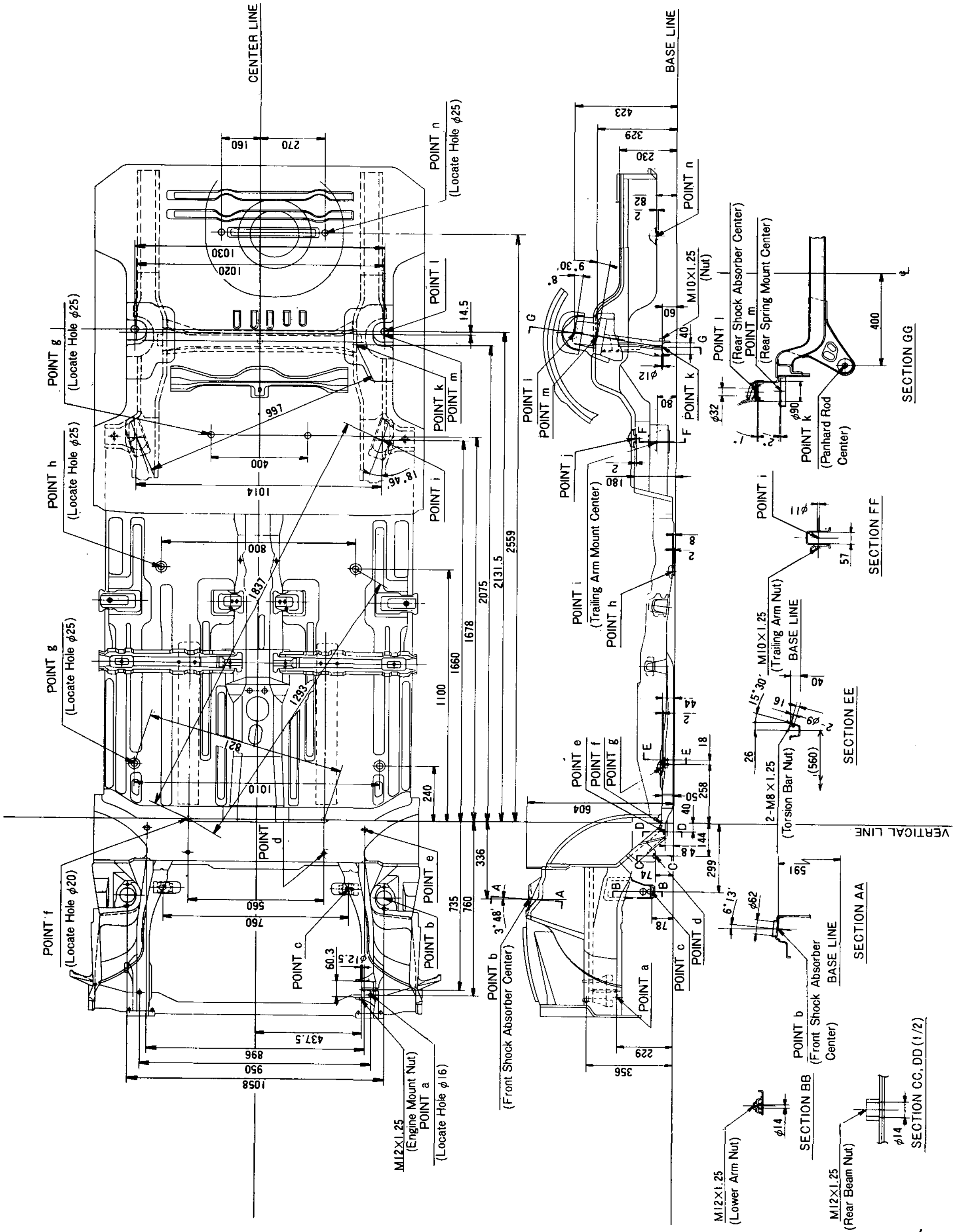
Unit : mm



POINT n
(Locate Hole φ25)
1030
1020
220
270
POINT l
POINT m
14.5
56.5
POINT i
(Locate Hole φ25)
997
(400)
POINT k
POINT i
400
1040
800
18.46
POINT h
(Locate Hole φ25)
2220
2005
1608
1590
1774
1100
POINT g
(Locate Hole φ25)
1010
821
1293
240
POINT d
POINT e
336
760
735
560
760
POINT f
(Locate Hole φ25)
POINT b
POINT c
60.3
φ12.5
437.5
896
950
1058
M12×1.25
(Engine Mount Nut)
POINT a
(Locate Hole φ16)
CENTER LINE
423
335
329
POINT n
192
9°30'
8°
2
60
M10×1.25
(Nut)
G
POINT l
POINT m
φ12
180
2
95
40
POINT k
F
POINT l
(Rear Shock Absorber Center)
POINT m
(Rear Spring Mount Center)
POINT j
POINT i
(Trailing Arm Mount Center)
POINT h
8
2
44
2
E
18
POINT e
POINT f
POINT g
604
50
40
256
D
144
48
299
C
B
74
78
A
3°48'
POINT b
(Front Shock Absorber Center)
POINT c
POINT d
POINT a
229
356
BASE LINE
VERTICAL LINE
400
φ90
φ32
2
POINT k
(Panhard Rod Center)
SECTION GG
POINT i
φ17
57
SECTION FF
2-M8×1.25
(Torsion Bar Nut)
M10×1.25
(Trailing Arm Nut)
BASE LINE
40
15°30'
16
2-φ9
26
(560)
SECTION EE (1/2)
POINT b
6°13'
φ62
BASE LINE
SECTION AA
591
M12×1.25
(Lower Arm Nut)
φ14
SECTION BB
M12×1.25
(Rear Beam Nut)
SECTION CC, DD (1/2)

4D

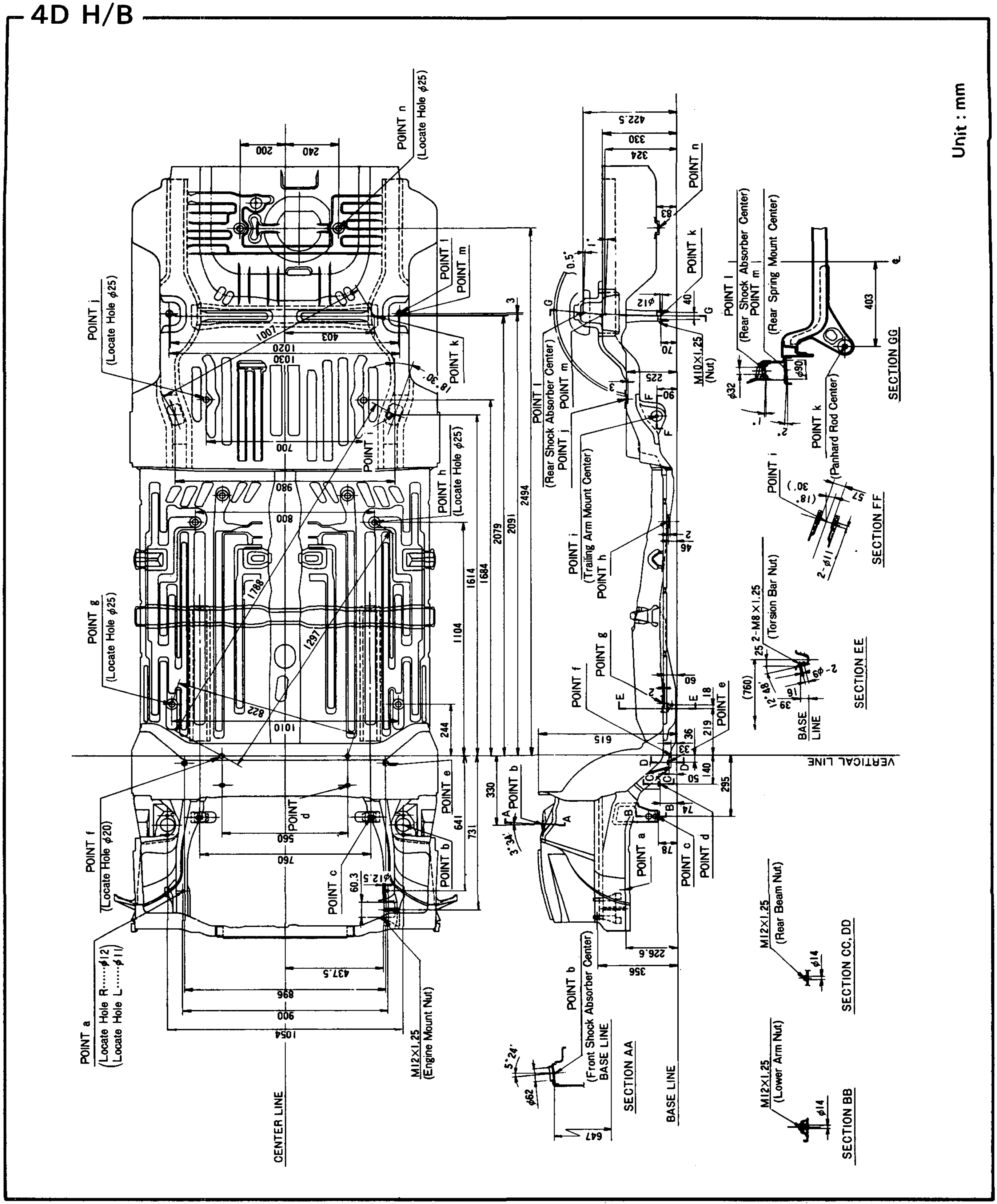
Unit : mm


CENTER LINE
BASE LINE
VERTICAL LINE
POINT a
(Locate Hole φ16)
M12×1.25
(Engine Mount Nut)
POINT b
(Front Shock Absorber Center)
POINT c
POINT d
POINT e
POINT f
(Locate Hole φ20)
POINT g
(Locate Hole φ25)
POINT h
(Locate Hole φ25)
POINT i
(Trailing Arm Mount Center)
POINT j
POINT k
(Panhard Rod Center)
POINT l
(Rear Shock Absorber Center)
POINT m
(Rear Spring Mount Center)
POINT n
(Locate Hole φ25)
M10×1.25
(Nut)
M10×1.25
(Trailing Arm Nut)
2-M8×1.25
(Torsion Bar Nut)
M12×1.25
(Lower Arm Nut)
M12×1.25
(Rear Beam Nut)
SECTION AA
SECTION BB
SECTION CC, DD (1/2)
SECTION EE
SECTION FF
SECTION GG
160
270
1030
1020
14.5
997
400
1014
18°46'
800
1837
1293
1282
1010
240
1100
1660
1678
2075
2131.5
2559
336
735
760
560
760
60.3
φ12.5
437.5
896
950
1058
3°48'
423
329
230
82
9°30'
8°
60
40
φ12
80
180
8
44
18
604
50
40
258
144
8
74
299
78
229
356
6°13'
φ62
591
15°30'
91
φ9
40
26
(560)
57
φ11
φ32
φ90
400
φ14
φ14
A
B
C
D
E
F
G

(cont'd)

Frame Repair Chart(cont'd)

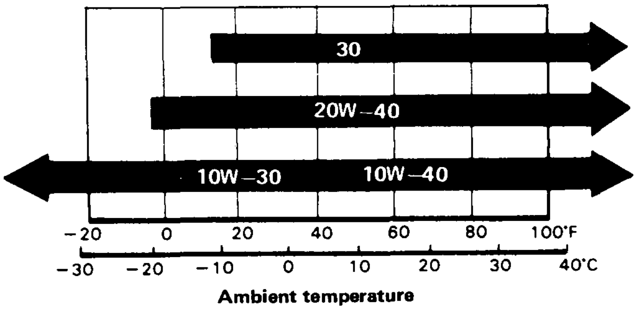
4D H/B


Unit : mm
POINT a (Locate Hole R······φ12) (Locate Hole L······φ11)
POINT b
POINT c
POINT d
POINT e
POINT f (Locate Hole φ20)
POINT g (Locate Hole φ25)
POINT h (Locate Hole φ25)
POINT i
POINT j (Locate Hole φ25)
POINT k
POINT l
POINT m
POINT n (Locate Hole φ25)
M12×1.25 (Engine Mount Nut)
CENTER LINE
BASE LINE
VERTICAL LINE
POINT b (Front Shock Absorber Center)
BASE LINE
SECTION AA
POINT h
POINT i (Trailing Arm Mount Center)
POINT j
POINT m
POINT l (Rear Shock Absorber Center)
M10×1.25 (Nut)
POINT k (Panhard Rod Center)
POINT l (Rear Shock Absorber Center)
POINT m (Rear Spring Mount Center)
SECTION GG
SECTION FF
2-M8×1.25 (Torsion Bar Nut)
SECTION EE
M12×1.25 (Rear Beam Nut)
SECTION CC, DD
M12×1.25 (Lower Arm Nut)
SECTION BB
1054
900
896
437.5
760
560
60.3
φ12.5
1010
822
1297
1788
980
800
700
1030
1020
1007
403
240
200
244
1104
1614
1684
2079
2091
2494
330
641
731
3
18°30'
615
36
33
219
140
50
295
74
78
226.6
356
647
5°24'
φ62
3°34'
60
18
46
2
225
90
70
40
φ12
83
1°
0.5°
324
330
422.5
403
φ90
φ32
57
30°
18°
2-φ11
(760)
25
12°48'
39
16
2-φ9
A
B
C
D
E
F
G

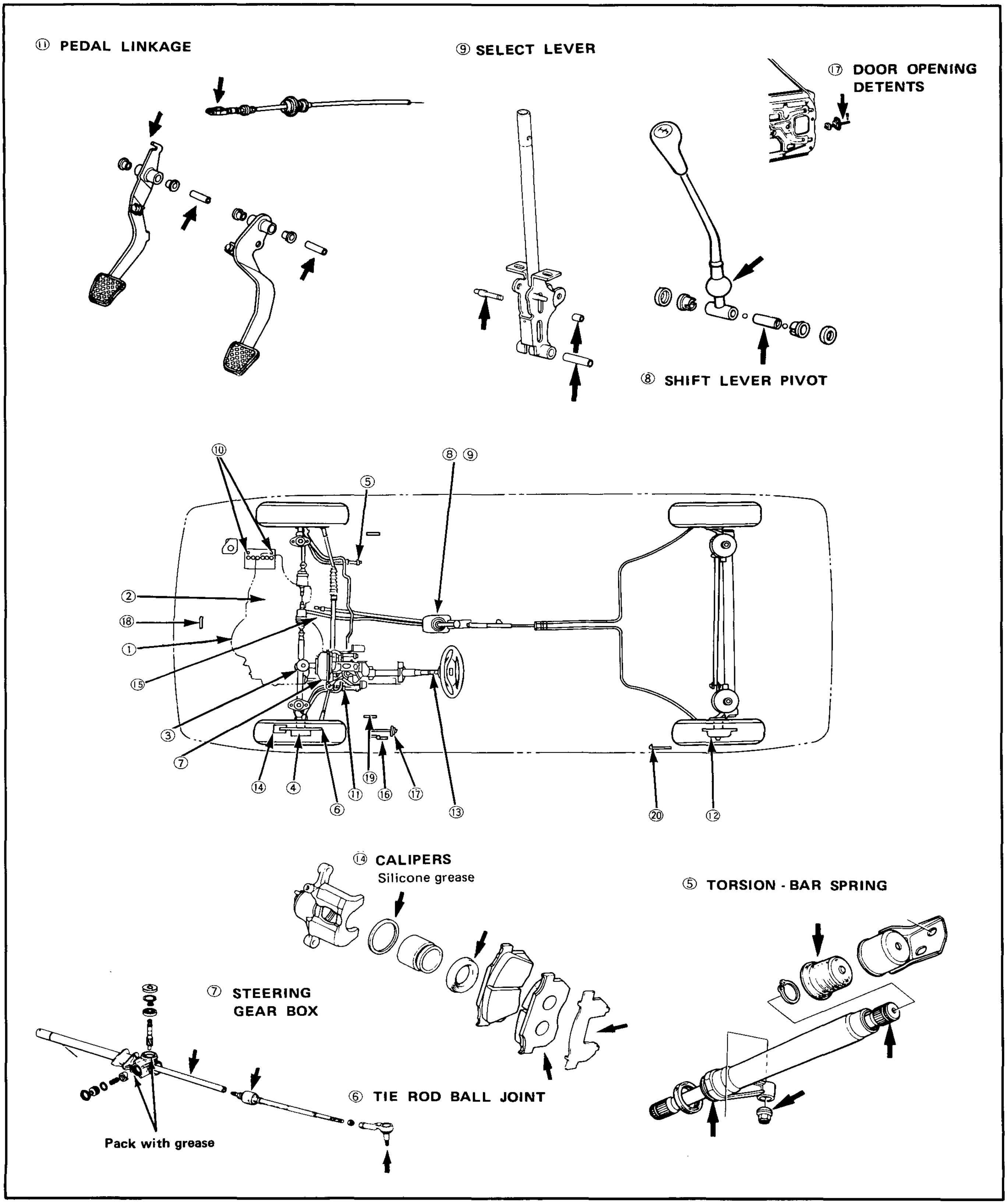
Lubrication Point

No.	LUBRICATION POINTS		LUBRICANT
1	Engine	Canadian	API Service Grade: SE or SF grade only
		Except Canadian	API Service Grade: SE or SF grade only SAE Viscosity: See page 4-4 chart
2	Transmission	Manual	API Service Grade: SE or SF SAE30, 10W−30, 10W−40 or 20W−40 grade oil
		Hondamatic	DEXRON Automatic transmission fluid
3	Brake reservoir		Brake fluid DOT 3 or DOT 4
4	Front wheel bearings and seals		Multipurpose Grease
5	Torsion-bar spring		
6	Tie rod ball joints		
7	Steering gearbos		
8	Shift lever pivot (Manual)		
9	Select lever (Hondamatic)		
10	Battery terminals		
11	Pedal linkage		
12	Rear brake shoe linkage		
13	Steering column bushings		
14	Caliper	Piston seal	Silicone Grease
		Dust seal	
		Caliper pin	
		Piston	
15	Shift clevis bushings		Multipurpose Grease
16	Door hinges upper and lower		
17	Door opening detents		
18	Engine hood latch		
19	Hood hinges		
20	Fuel filler door		
21	Trunk hinges		

Recommended Manual Transmission Oil
(SE or SF grade Only)



Manual transmission oil viscosity for ambient temperature ranges.


⑪ PEDAL LINKAGE
⑨ SELECT LEVER
⑰ DOOR OPENING DETENTS
⑧ SHIFT LEVER PIVOT
⑩
⑧ ⑨
⑤
②
⑱
①
⑮
③
⑦
⑭
④
⑥
⑪
⑲
⑯
⑰
⑬
⑳
⑫
⑭ CALIPERS
Silicone grease
⑤ TORSION - BAR SPRING
⑦ STEERING GEAR BOX
⑥ TIE ROD BALL JOINT
Pack with grease

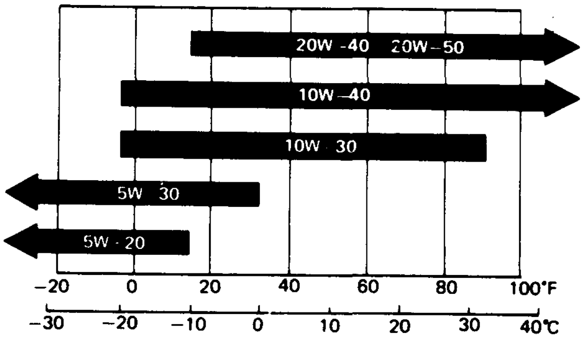
Lubrication (cont'd)

Recommended Engine Oil

Canadian Model

Engine oil viscosity for ambient temperature ranges.

Recommended Engine oil (SE or SF Grade only)

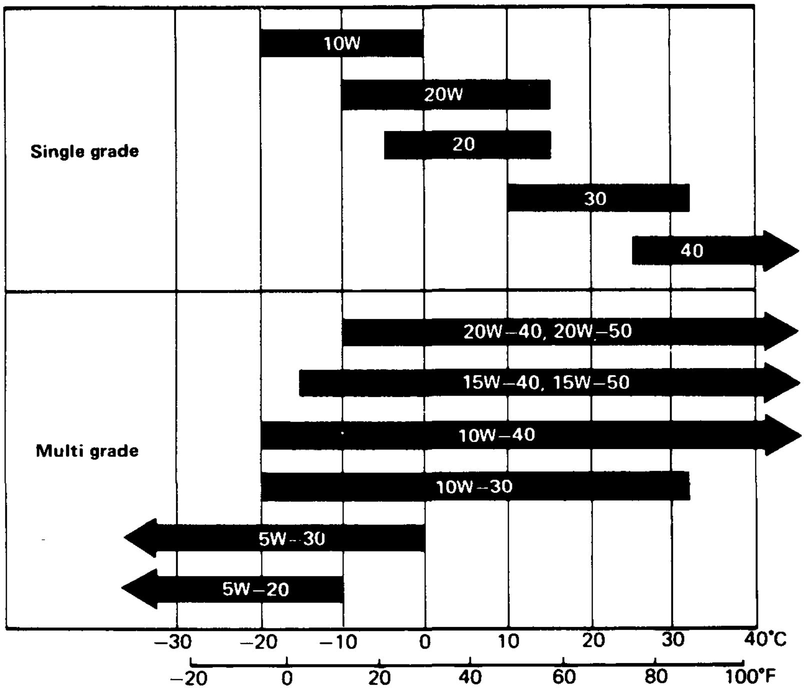


Expected Ambient Temperature before next oil change

Except Canadian Models

Engine oil viscosity for ambient temperature ranges.

Recommended Engine oil (SE or SF Grade only)



Expected Ambient Temperature before next oil change

Required Maintenance Schedule

Canadian Model

R — REPLACE
I — INSPECT
AFTER INSPECTION, CLEAN, ADJUST, REPAIR OR REPLACE IF NECESSARY

SERVICE AT THE INTERVAL LISTED x 1,000 KM (OR MILES) OR AFTER THAT NUMBER OF MONTHS, WHICHEVER OCCURS FIRST.

*1 Inspect idle CO every 60 months or 96,000 km (60,000 miles), whichever comes first.
*2 Thereafter, replace every 2 years or 48,000 km (30,000 miles), whichever comes first.

ITEMS			miles/months	7.5	15	22.5	30	37.5	45	52.5	60
			km	12	24	36	48	60	72	84	96
ENGINE	IDLE SPEED				I		I		I		I*1
	VALVE CLEARANCE				I		I		I		I
	ALTERNATOR DRIVE BELT						I				I
	ENGINE OIL			R	R	R	R	R	R	R	R
	ENGINE OIL FILTER			R	R	R	R	R	R	R	R
	TRANSMISSION OIL	MANUAL					R				R
		HONDAMATIC			R				R		
	RADIATOR COOLANT								R*2		
	COOLING SYSTEM, HOSES AND CONNECTIONS						I				I
FUEL SYSTEM	AIR CLEANER ELEMENT						R				R
	FUEL FILTER										R
	INTAKE AIR TEMP. CONTROL SYSTEM										I
	TANK, FUEL LINES AND CONNECTIONS						I				I
	THROTTLE CONTROL SYSTEM						I				I
	CHOKE MECHANISM						I				I
EVAPORATIVE CONTROL SYSTEM	CHARCOAL CANISTER										I
	TWO-WAY VALVE										I
IGNITION COMPONENTS	IGNITION TIMING AND CONTROL SYSTEM						I				I
	SPARK PLUGS				R		R		R		R
	DISTRIBUTOR CAP AND ROTOR						I				I
	IGNITION WIRING						I				I
CRANKCASE EMISSION CONTROL SYSTEM	PCV VALVE						R				R
	BLOW-BY FILTER						R				R
FRAME	BRAKE HOSES, LINES			I	I		I		I		I
	BRAKE FLUID						R				R
	REAR BRAKES						I				I
	FRONT BRAKE PADS, DISCS AND CALIPERS			I	I	I	I	I	I	I	I
	PARKING BRAKE			I			I				I
	CLUTCH RELEASE ARM TRAVEL			I	I	I	I	I	I	I	I
	ENGINE EXHAUST SILENCER, SUSPENSION MOUNTING BOLTS			I	I		I		I		I
	WHEEL ALIGNMENT (FRONT)				I		I		I		I
	STEERING OPERATION, TIE ROD ENDS, STEERING GEAR BOX AND BOOTS			I			I				I

CAUTION:

- **If vehicle is operated under severe conditions; driving in severe cold condition, short distance driving or driving in dusty condition, change engine oil and engine oil filter every 5,000 km (3,000 miles) or 3 months, whichever comes first.**
- **Disc brakes should be serviced every 7-1/2 months or 12,000 km (7,500 miles) however, in areas using a high concentration of road salt or other corrosive materials more frequent servicing may be required.**

REMARK: DAY TO DAY CARE (such as oil, coolant level check and replenishment etc,) should be done practically according to the Owner's Manual.

(cont'd)

Required Maintenance Schedule (cont'd)

Except Canadian Model

R – REPLACE
I – INSPECT
AFTER INSPECTION, CLEAN, ADJUST, REPAIR OR REPLACE IF NECESSARY

SERVICE AT THE INTERVAL LISTED x 1,000 KM (OR MILES) OR AFTER THAT NUMBER OF MONTHS, WHICHEVER OCCURS FIRST.			*1 Thereafter, replace every 2 years or 48,000 km (30,000 miles), whichever comes first.								
ITEMS			Miles/months	7.5	15	22.5	30	37.5	45	52.5	60
			km	12	24	36	48	60	72	84	96
ENGINE	IDLE SPEED AND IDLE CO				I		I		I		I
	VALVE CLEARANCE				I		I		I		I
	ALTERNATOR DRIVE BELT						I				I
	▌ENGINE OIL*1			R	R	R	R	R	R	R	R
	ENGINE OIL FILTER			R	R	R	R	R	R	R	R
	▌TRANSMISSION OIL	MANUAL					R				R
		HONDAMATIC			R				R		
	▌RADIATOR COOLANT								R*1		
	COOLING SYSTEM, HOSES AND CONNECTIONS						I				I
FUEL SYSTEM	AIR CLEANER ELEMENT				R		R		R		R
	FUEL FILTER						R				R
	INTAKE AIR TEMP. CONTROL SYSTEM*4										I
	TANK, FUEL LINES AND CONNECTIONS						I				I
	THROTTLE CONTROL SYSTEM*2 *4						I				I
	CHOKE MECHANISM *4						I				I
EVAPORATIVE CONTROL SYSTEM*3	CHARCOAL CANISTER										I
	TWO-WAY VALVE										I
IGNITION COMPONENTS	IGNITION TIMING AND CONTROL SYSTEM						I				I
	SPARK PLUGS				R		R		R		R
	DISTRIBUTOR CAP AND ROTOR						I				I
	IGNITION WIRING						I				I
CRANCASE EMISSION CONTROL SYSTEM	PCV VALVE						R				R
	BLOW-BY FILTER						R				R
FRAME	BRAKE HOSES, LINES			I	I		I		I		I
	BRAKE FLUID						R				R
	REAR BRAKES						I				I
	FRONT BRAKE PADS, DISCS AND CALIPERS			I	I	I	I	I	I	I	I
	PARKING BRAKE			I			I				I
	CLUTCH RELEASE ARM TRAVEL			I	I	I	I	I	I	I	I
	ENGINE EXHAUST SILENCER, SUSPENSION MOUNTING BOLTS			I	I		I		I		I
	WHEEL ALIGNMENT (FRONT)				I		I		I		I
	STEERING OPERATION, TIE ROD ENDS, STEERING GEAR BOX AND BOOTS			I			I				I

CAUTION:

- **If vehicle is operated under severe conditions; driving in severe cold condition, short distance driving or driving in dusty condition, change engine oil and engine oil filter every 5,000 km (3,000 miles) or 3 months, whichever comes first.**
- **Disc brakes should be serviced every 7-1/2 months or 12,000 km (7,500 miles) however, in areas using a high concentration of road salt or other corrosive materials more frequent servicing may be required.**

▌**REMARK: DAY TO DAY CARE (such as oil, coolant level check and replenishment etc,) should be done practically according to the Owner's Manual.**

[2] Only for Manual transmission on Swedish, Swiss and Australian types.
[3] Only for the cars sold in Australia.
[4] Except the car with Electronical Fuel Injection.

Maintenance Specifications/Settings

TUNE UP CONDITION: Engine at normal operating temperature

Canadian Model

TUNE UP CONDITION: Engine at normal operating temperature.

SUBJECT		ITEMS OR CONDITIONS		REQUIREMENTS
ENGINE	Ignition timing (At idle)	Manual transmission		10 ± 2° BTDC
		Hondamatic (in gear)		14 ± 2° BTDC
	Valve clearance	Below 38°C (100°F)	Intake	0.17–0.22 mm (0.007–0.009)
			Exhaust	0.22–0.27 mm (0.009–0.011)
	Idle speed (With headlights off and cooling fan off)	Manual transmission (At neutral)		750 ± 50 min^{-1} (rpm)
		Hondamatic (in gear)		700 ± 50 min^{-1} (rpm)
	Idle CO	Manual and Hondamatic		below 2.0 %
	Choke fast idle	Manual and Hondamatic		1,500–2,500 min^{-1} (rpm)
	Standard Spark plug	Type: NGK: BPR6EY–11 Denso: W20EXR–U11	or equivalent	Gap: 1.0–1.1 mm (0.039–0.043 in.)
	Compression	350 min^{-1} (rpm) and wide-open throttle		1225 kPa (12.5 kg/cm^2, 176 psi)
	Alternator belt	Belt deflection with 98N(10 kg, 22 lb.) tension		7–10 mm (0.28–0.39 in.)
	Ignition wire	Resistance		25,000 ohms maximum
	Radiator cooling fan	Fan operating temperature		Above 90 ± 1.5°C (194 ± 3°F)
EVAPORATIVE EMISSION CONTROLS	Two-way valve	Pressurize		25–55 mmHg (1.0–2.2 in. Hg)
		Draw		5–15 mmHg (0.2–0.6 in. Hg)
	Charcoal canister	Draws		Partial open throttle
CLUTCH	Manual transmission	Pedal free play		16–21 mm (0.63–0.83 in.)
		Pedal height		179 mm (7.05 in.)
SUSPENSION	Tires pressure (cold)	1300 H/B 4MT, 1500 H/B and 4D	(front and rear)	180 kPa (1.8 kg/cm^2, 26 psi)
		1300 H/B 5MT and Hondamatic	(front)	240 kPa (2.4 kg/cm^2, 35 psi)
			(rear)	220 kPa (2.2 kg/cm^2, 32 psi)
		4D H/B	(font and rear)	220 kPa (2.2 kg/cm^2, 32 psi)
			(spare)	415 kPa (4.2 kg/cm^2, 60 psi)
	Wheel alignment	Front Camber		0°00′±1° 4D H/B 0°20±1°
		Caster		4D H/B 2°05′±1° 2D H/B, 4D 2°20′
		Toe		0±3 mm (0±0.118 in.)
		Kingpin inclination		4DH/B 12°00′±30′ 2DH/B, 4D 12°50′±30′
		Rear Toe		In 2±2 mm (0.08±0.08 in.)
BRAKES	Pedal	Free play		1–5 mm (0.04–0.20 in.)
		Pedal-to-floor clearance		174mm(6.8 in.) 4D H/B 168mm(6.6) in.
	Pad and shoe	Pad wear limit		3 mm (0.1 in.) min. thickness
		Shoe lining wear limit		2.0 mm (0.08 in.) min. thickness
	Drum	*Absolute refinishing limit*		181 mm (7.13 in.) max. diameter 4D H/B 201 mm (7.91 in.) max. diameter
	Rotor disc	Absolute refinishing limit	Solid	12 mm (0.47 in.) min. thickness
			Ventilated	17 mm (0.67 in.) min. thickness

(cont'd)

Maintenance Specifications/Settings (cont'd)

European Model

SUBJECT		ITEMS OR CONDITIONS	REQUIREMENTS
ENGINE	Ignition timing (At idle)	1200 carburetor 1300 carburetor 1500 carburetor PGM-FI (Coupe)	17 ± 2° BTDC 12 ± 2° BTDC 14 ± 2° BTDC 16 ± 2° BTDC
	Valve clearance	Below 38°C (100°F) Intake	0.17–0.22 mm (0.007–0.009 in.)
		Exhaust	0.22–0.27 mm (0.009–0.011 in.)
	Idle speed *[1] (With headlight off and cooling fan off)	Manual transmission (At neutral)	750 ± 50 min^{-1} (rpm)
		Hondamatic (in gear)	700 ± 50 min^{-1} (rpm)
	Idle CO	Manual and Hondamatic	KS, KX 0.5–2.0% Other types below 3%
	Choke fast idle	Carburetor	1,500–2,500 min^{-1} (rpm)
		PGM-FI	1,200–2,000 min^{-1} (rpm)
	Standard Spark plug	Type: NGK: BPR6EY-11 Denso: W20EXR–U11	1.0–1.1 mm (0.039–0.043 in.)
	Compression	350 min^{-1} (rpm) and wide-open throttle	Carburetor: 1,225kPa (12.5kg/cm^2, 176 psi) PGM-FI: 1,274kPa (13.5kg/cm^2, 185 psi)
	Alternator belt	Belt deflection with 98N (10 kg, 22 lb) tension	7–10mm (0.28–0.39 in.)
	Ignition wire	Resistance	25,000 ohms maximum
	Radiator cooling fan	Fan operating temperature	Above 90 ± 1.5°C (194 ± 3°F)
CLUTCH	Manual transmission	Pedal free play Except Coupe Coupe	16–21 mm (0.63–0.83 in.) 10–30 mm (0.39–1.18 in.)
		Pedal height Except Coupe Coupe	179 mm (7.05 in.) 175 mm (6.89 in.)
SUSPENSION	Tires pressure (cold)	Coupe (front and rear) 2D H/B, 4D (front and rear) 4D H/B (front and rear) (spare)	170 kPa (1.7 kg/cm^2, 24 psi) 180 kPa (1.8 kg/cm^2, 26 psi) 190 kPa (1.9 kg/cm^2, 28 psi) 41.5 kPa (4.2 kg/cm^2, 60 psi)
	Wheel alignment	Front Camber	Coupe 2D H/B and 4D 0°00'±1° 4D H/B 0°26'±1°
		Caster	Coupe 2°25'±1°, 2D H/B and 4D 0°00'±1° 4D H/B 1°49'±1°
		Toe	0±3 mm (0±0.118 in.)
		Kingpin inclination	Coupe 12°55'±30', 2D H/B and 4D 12°50'±30', 4D H/B 11°54'±30'
		Rear Toe	In 2±2 mm (0.08±0.08 in.)
BRAKES	Pedal	Free play	1–5 mm (0.04–0.20 in.)
		Pedal-to-floor clearance	174 mm (6.8 in.) 4D H/B 168 mm (6.6 in.)
	Pad and shoe	Pad wear limit	3 mm (0.1 in.) min. thickness
		Shoe lining wear limit	2.0 mm (0.06 in.) min. thickness
	Front rotor disc	Absolute refinishing limit	Solid disc 12 mm (0.47 in.) min. thickness Ventilated disc 17 mm (0.67 in.) min. thickness
	Rear drum	Absolute refinishing limit	181 mm (7.13 in.) max. diameter 4D H/B 201 mm (7.9 in.) max. diameter

*[1] Only for KS Model (With headlights on and cooling fan off)

KQ Model

Only the maintenance specifications and settings for above two models different from those of the European model (Except KS, KX model) are listed.
For the other items not given here, refer to the European model maintenance specifications and settings.

SUBJECT		ITEMS OR CONDITIONS		REQUIREMENTS
ENGINE	Ignition timing(At idle)			14 ± 2° BTDC
	Idle: CO	Manual and Hondamatic		below 2.0 %
EVAPORATIVE EMISSION CONTROLS	Two-way valve	Pressurize		5–15 mmHg (0.2–0.6 in. Hg)
		Draw		15–30 mmHg (0.6–1.2 in. Hg)
	Chacoal canister	Draws		Partical open throttle
SUSPENSION	Tires pressure (cold)	Front and Rear		180 kPa (1.8 kg/cm^2, 26 psi)
		Front	Camber	2D H/B, 4D 0°00′±1° 4D H/B 2°30′±1°
			Caster	2D H/B, 4D 2°21′±1° 4D H/B 2°00′±1°
			Kingpin inclination	2D H/B, 4D 12°50′±30′ 4D H/B 11°45′±30′

KY Model

Only the maintenance specifications and settings for above two models different from those of the European model (Except KS, KX model) are listed.
For the other items not given here, refer to the European model maintenance specifications and settings.

SUBJECT		ITEMS OR CONDITIONS		REQUIREMENTS
ENGINE	Ignition timing(At idle)			16 ± 2° BTDC
	Spark plug	Type: NGK BP6EY–11 Denso W20EX–U11		Gap: 1.0–1.1 mm (0.039–0.043 in.)
SUSPENSION	Tires Pressure (cold)	Front and Rear		180 kPa (1.8 kg/cm^2, 26 psi)
	Wheel alignment	Front	Camber	2D H/B 0°20′±1° 4D, 4D H/B 0°30′±1°
			Caster	2D H/B 2°10′±1° 4D 2°15′±1° 4D H/B 2°00′±1°
			Kingpin inclination	2D H/B 12°30′±30′ 4D 12°15′±30′ 4D H/B 11°54′±30′

General Export Model

Only the maintenance specifications and settings for above two models different from those of the European model (Except KS, KX model) are listed.
For the other items not given here, refer to the European model maintenance specifications and settings.

SUBJECT		ITEMS OR CONDITIONS		REQUIREMENTS
ENGINE	Ignition timing(At idle)	1200		17 ± 2° BTDC
		1300		12 ± 2° BTDC
		1500		16 ± 2° BTDC
	Spark plug	Type: NGK BP6EY–11 Denso W20EX–U11		Gap: 1.0–1.1 mm (0.039–0.043 in.)
SUSPENSION	Tires Pressure (cold)	Front and Rear		180 kPa (1.8 kg/cm^2, 26 psi)
	Wheel alignment	Front	Camber	2D H/B, 4D 0°00′±1° 4D H/B 0°30′±1°
			Caster	2D H/B, 4D 2°21′±1° 4D H/B 2°00′±1°
			Kingpin inclination	2D H/B, 4D 12°50′±30′ 4D H/B 11°45′±30′

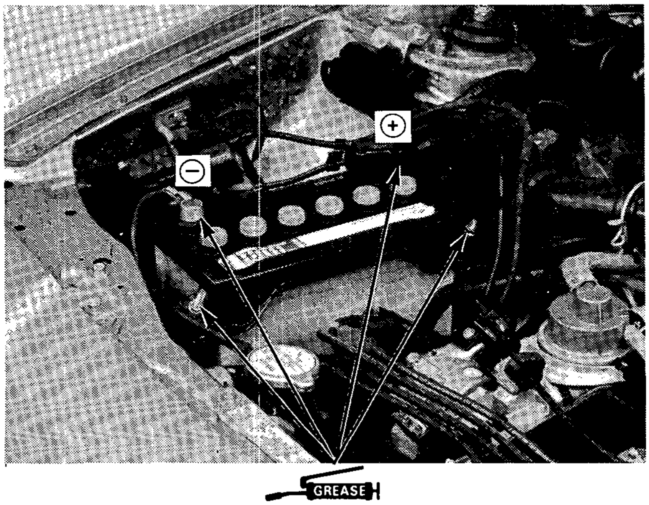
Engine Removal/Installation

WARNING

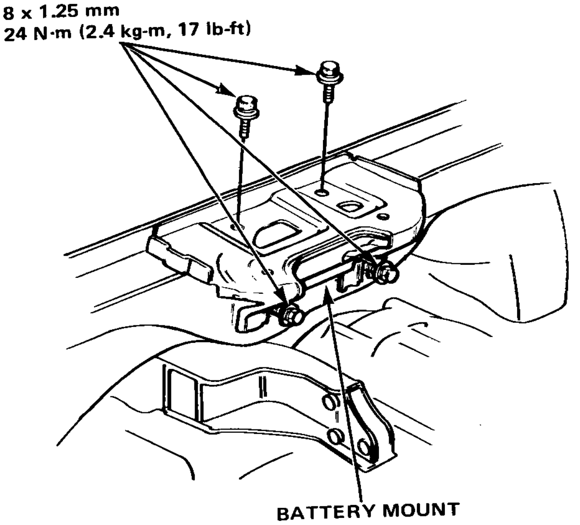
- **Make sure jacks and safety stands are placed properly (pages 1-5 thru 7), and hoist brackets are attached to correct positions on the engine (page 5-10).**
- **Apply parking brake and block rear wheels, so car will not roll off stands and fall on you while working under it.**

CAUTION: Use fender covers to avoid damaging painted surfaces.

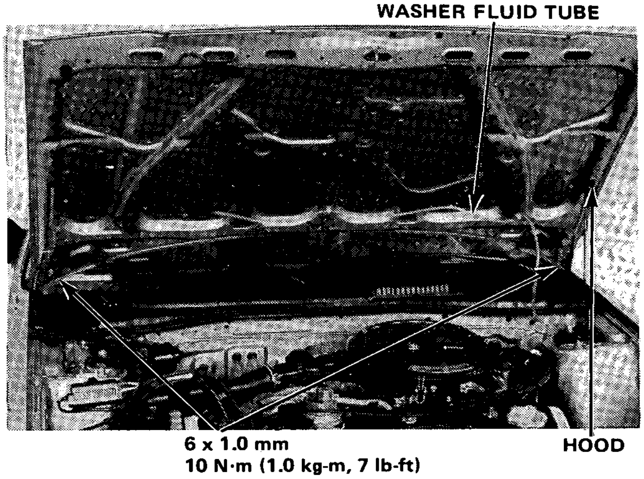
1. Disconnect the battery negative terminal first, then the positive terminal.



2. Remove the battery them, remove the battery mount.

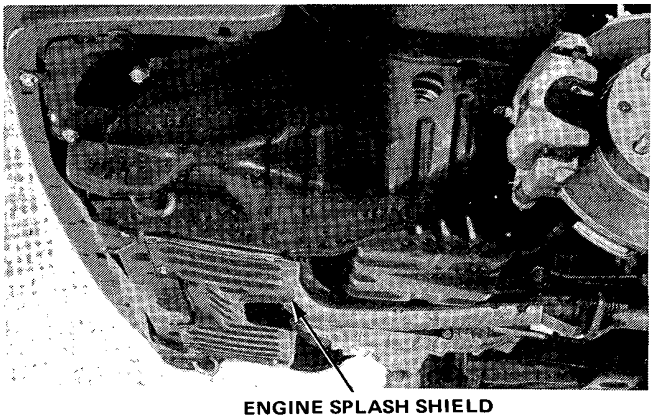

8 x 1.25 mm
24 N·m (2.4 kg-m, 17 lb-ft)
BATTERY MOUNT

3. Unbolt the hood brackets and remove the hood.
   - Disconnect the washer fluid tube.

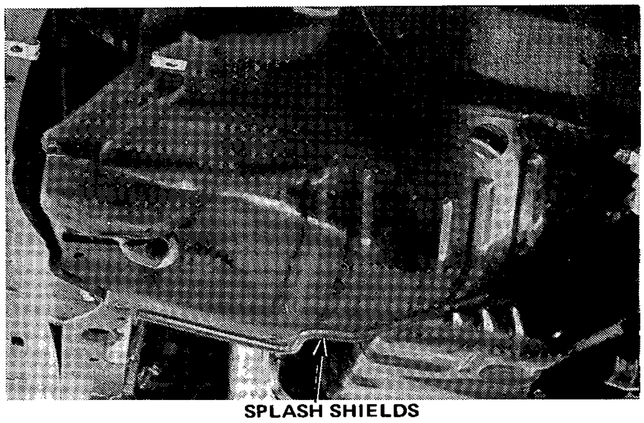

WASHER FLUID TUBE
6 x 1.0 mm
10 N·m (1.0 kg-m, 7 lb-ft)
HOOD

CAUTION: Use care when storing the hood to avoid damaging the paint.

4. Remove the engine splash shield.

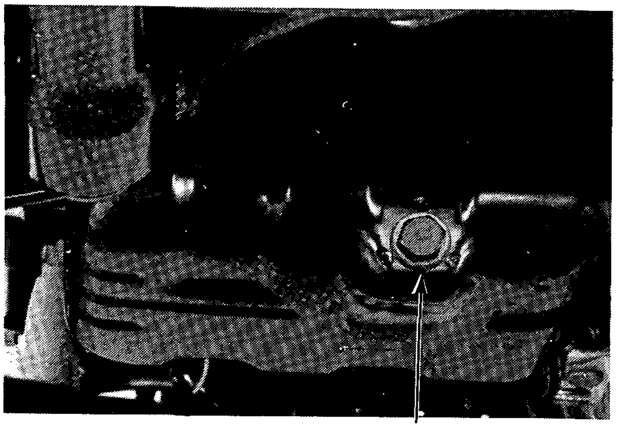

ENGINE SPLASH SHIELD

5. Remove the wheelwell splash shields.


SPLASH SHIELDS

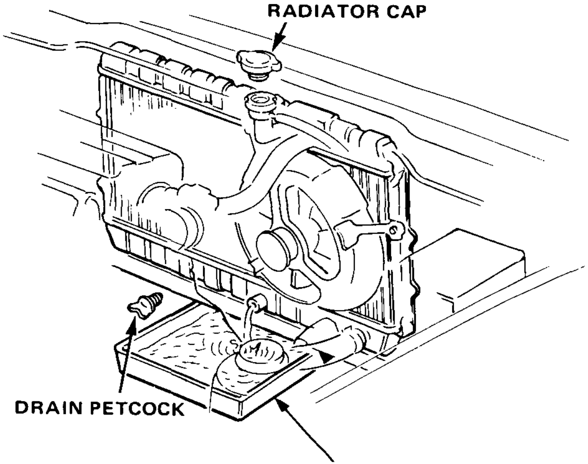
6. Drain the engine oil. Remove the oil filler cap to speed draining. Reinstall the drain plug with a new washer.

CAUTION: Do not re-use old washer.

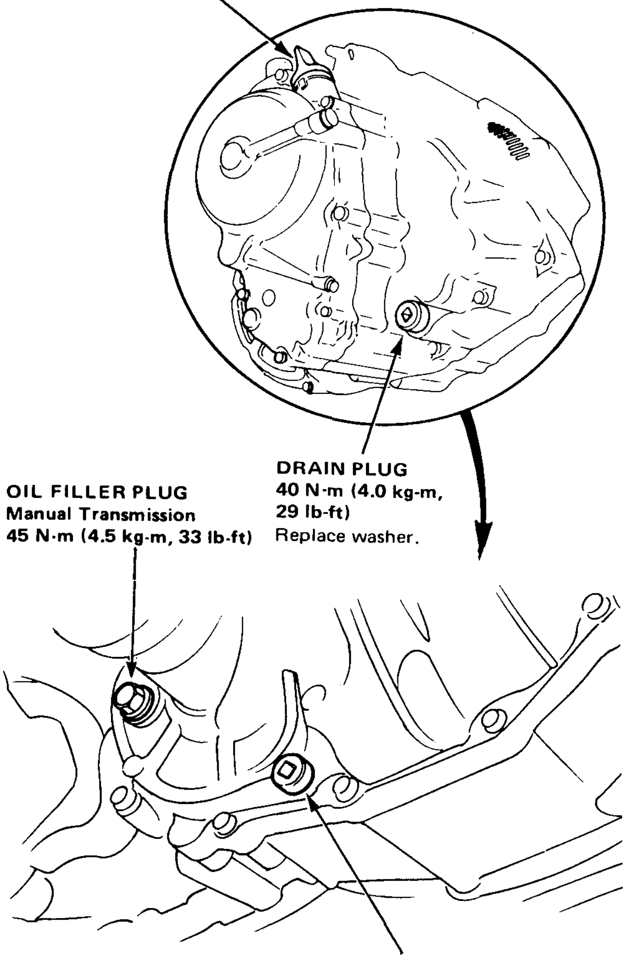

OIL PAN DRAIN PLUG
45 N·m (4.5 kg-m, 33 lb-ft)

7. Drain the coolant from the radiator into a clean pan so it may be re-used. Remove the radiator cap to speed draining.

WARNING Use care when removing radiator cap to avoid scalding by hot coolant or steam.


RADIATOR CAP
DRAIN PETCOCK
Use clean drain pan.

8. Drain transmission oil/fluid. Use a 3/8" drive socket wrench to remove the drain plug. Remove the oil filler plug to speed draining. Reinstall the drain plug with a new washer.

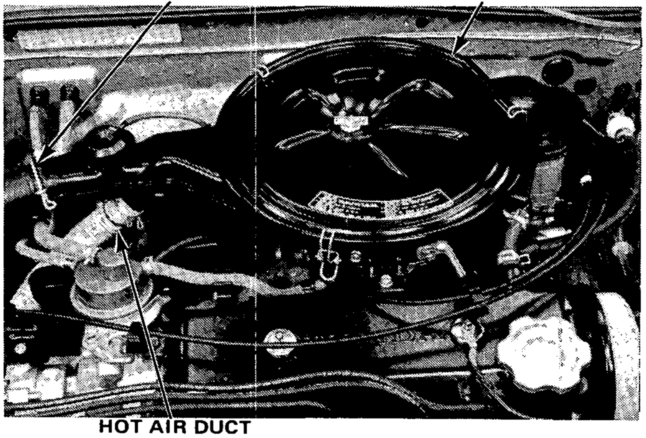

FILLER PLUG/DIPSTICK
Hondamatic Transmission
DRAIN PLUG
40 N·m (4.0 kg-m, 29 lb-ft)
Replace washer.
OIL FILLER PLUG
Manual Transmission
45 N·m (4.5 kg-m, 33 lb-ft)
DRAIN PLUG
40 N·m (4.0 kg-m, 29 lb-ft)
Replace washer.

(cont'd)

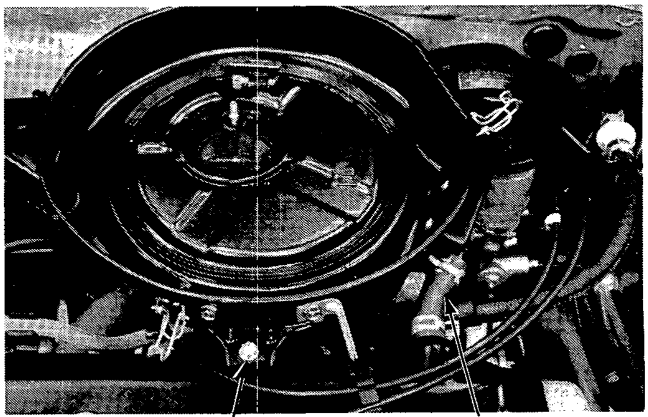
Engine Removal/Installation (cont'd)

9. Remove the air cleaner: (Expect Coupe)

   - Disconnect the air intake duct, hot air duct and air chamber hose.


AIR INTAKE DUCT
AIR CLEANER COVER
HOT AIR DUCT

   - Remove the air cleaner cover and filter.
   - Disconnect the condensation chamber hose.

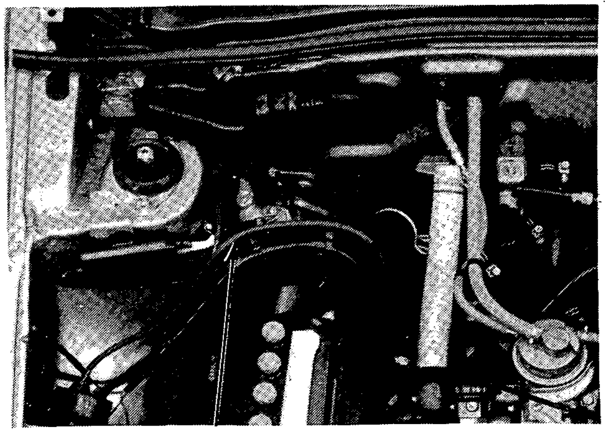

BOLT
6 x 1.0 mm
CONDENSATION
CHAMBER HOSE

   - Remove the bolt holding the air cleaner.
   - Disconnect the intake air temperature sensor wire.
   - Lift the air cleaner up and disconnect the air bleed valve hose and emission hose.

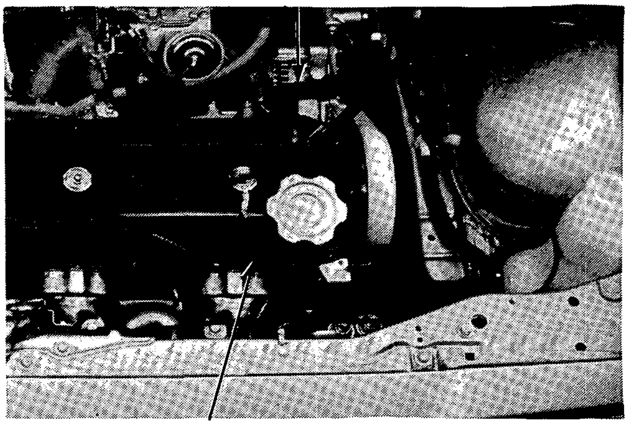
10. Disconnect the following wires:

    NOTE: On reassembly, connect all wires properly; check that they are not pinched or interfering with adjacent parts.

    - Disconnect the engine compartment sub harness connector.


ENGINE COMPARTMENT
SUB HARNESS CONNECTOR

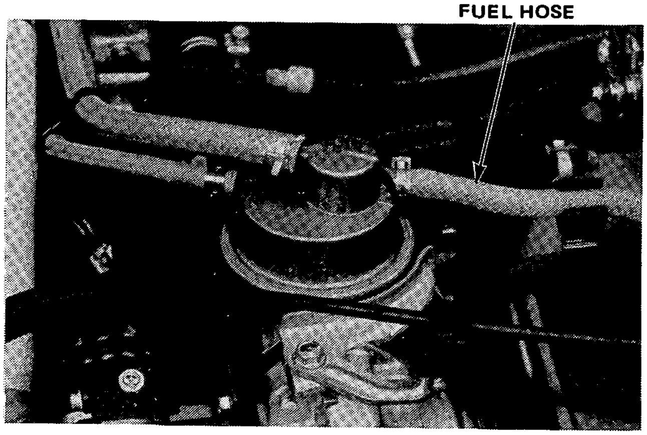
    - Disconnect the brake booster vacuum hose.


BRAKE BOOSTER VACUUM HOSE
ENGINE SECONDARY CABLE

    - Remove the engine secondary cable.

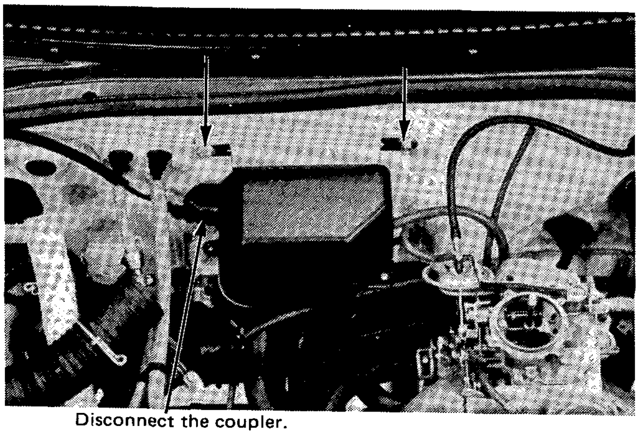
11. Disconnect fuel hose at the fuel pump. (Expect Coupe)

WARNING **Do not smoke while working on fuel system. Keep open flame away from work area.**



12. Remove the fuel pump cover and fuel pump. (Expect Coupe)

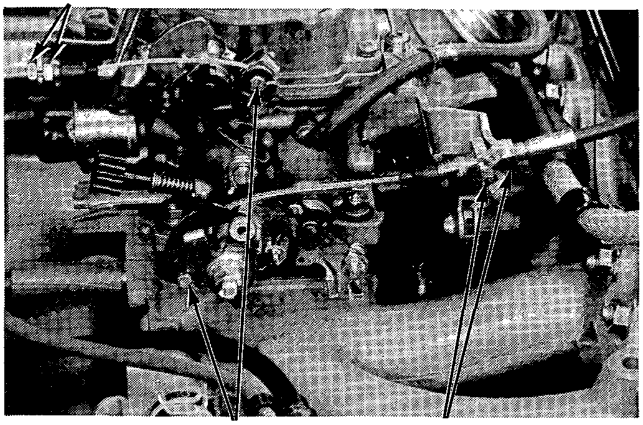
13. Disconnect No. 1 control box connector. Lift control box off its bracket, and let it hang next to engine.



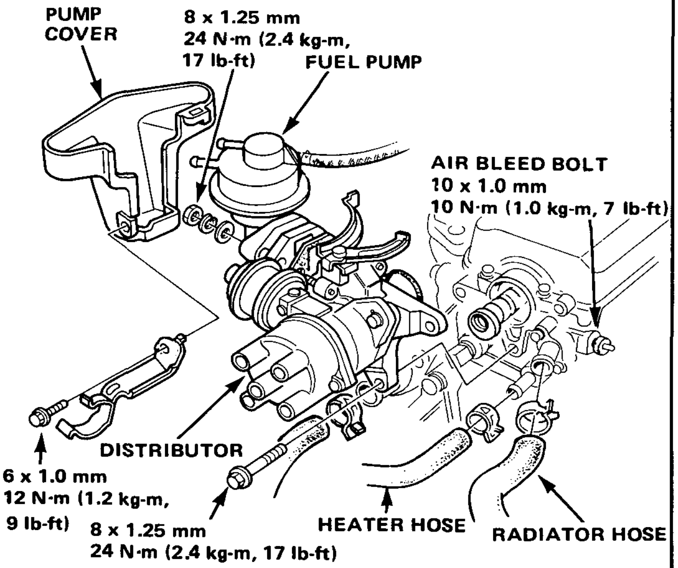
Disconnect the coupler.

14. *Remove the choke and throttle cables by loosening the locknuts and the adjusting nuts, then slip the cable ends and out the brackets and carburetor linkage. (Expect coupe)*

NOTE: Take care not to bend the cable when removing it. Do not use pliers to remove the cable from the linkage. Always replace a kinked cable with a new one.


CHOKE CABLE LOCK NUT and ADJUSTING NUT
CABLE ENDS
THROTTLE CABLE LOCKNUT and ADJUSTING NUT

15. Disconnect the ignition wires at the spark plugs and remove the distributor. (Expect coupe)


PUMP COVER
8 x 1.25 mm
24 N·m (2.4 kg-m, 17 lb-ft)
FUEL PUMP
AIR BLEED BOLT
10 x 1.0 mm
10 N·m (1.0 kg-m, 7 lb-ft)
DISTRIBUTOR
6 x 1.0 mm
12 N·m (1.2 kg-m, 9 lb-ft)
8 x 1.25 mm
24 N·m (2.4 kg-m, 17 lb-ft)
HEATER HOSE
RADIATOR HOSE

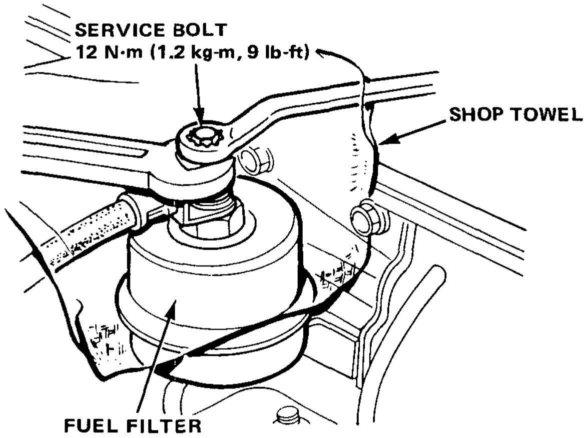
(cont'd)

16. Relieve fuel pressure. (Coupe)

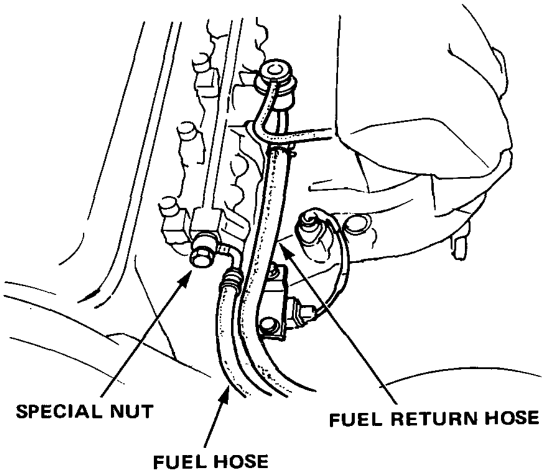
WARNING Do not smoke while working on fuel system. Keep open flame away from work area. Drain fuel only into an approved container.

CAUTION: **Before disconnecting the fuel line, fuel pressure should be relieved by loosening the service bolt on the top of the fuel filter while engine is stopped.**

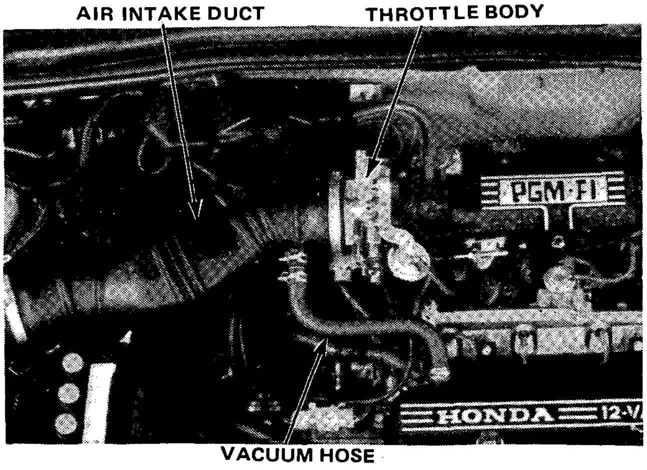
–1) Place a shop towel over the fuel filter to prevent pressurized fuel from spreading over the engine.
–2) Loosen the service bolt slowly by approximately one full turn. This relieves fuel pressure.
–3) Using a new sealing washer, tighten the service bolt.


SERVICE BOLT
12 N·m (1.2 kg-m, 9 lb-ft)
SHOP TOWEL
FUEL FILTER

17. Disconnect the fuel return hose from the pressure regulator. Remove the special nut them remove the fuel hose.

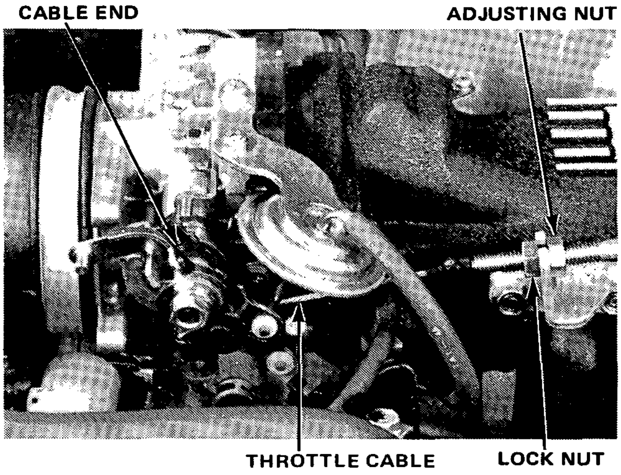

SPECIAL NUT
FUEL RETURN HOSE
FUEL HOSE

18. Disconnect the air intake duct and vacuum hose. (Coupe)

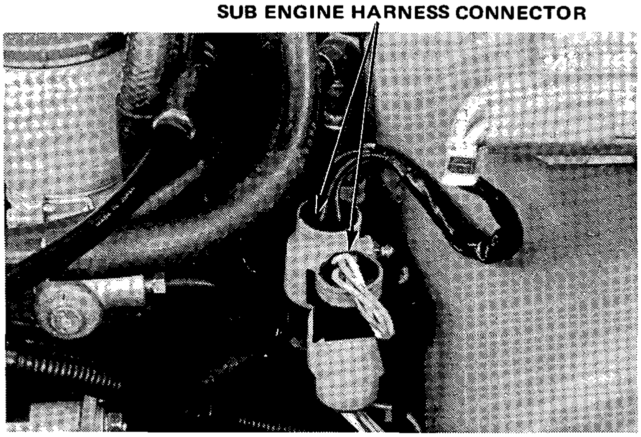

AIR INTAKE DUCT
THROTTLE BODY
VACUUM HOSE

19. Remove the throttle cable by loosening the locknut and adjusting nuts, the slip the cable and out the bracket and linkage.
(Coupe)

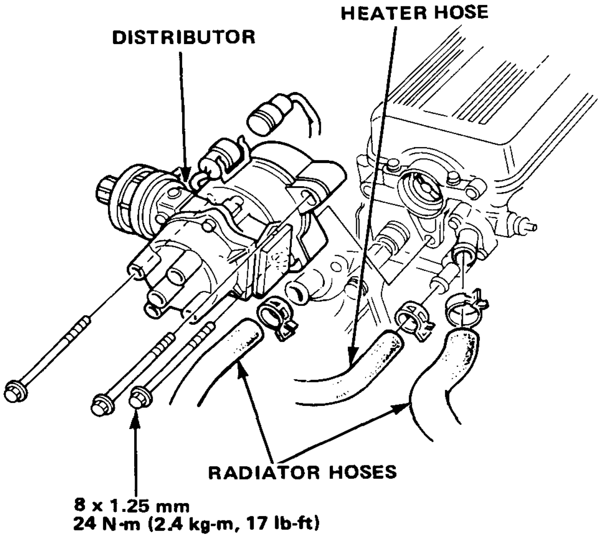
NOTE: Take care not bend the cable when removing it. Do not use pliers to remove the cable from the linkage. Always replace a kinked cable with a new one.


CABLE END
ADJUSTING NUT
THROTTLE CABLE
LOCK NUT

20. Disconnect the sub engine harness connectors. (Coupe)


SUB ENGINE HARNESS CONNECTOR

21. Disconnect the ignition wires at the spark plugs and remove the distributor. (Coupe)


DISTRIBUTOR
HEATER HOSE
RADIATOR HOSES
8 x 1.25 mm
24 N·m (2.4 kg-m, 17 lb-ft)

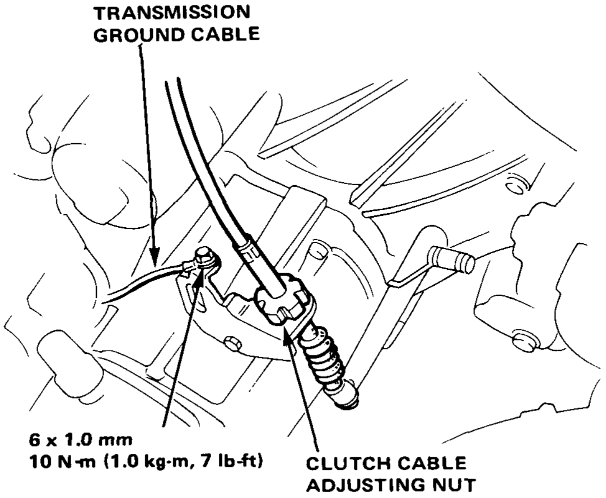
22. Disconnect the radiator hoses and heater hoses at the engine. Mark the heater hoses so they will be reinstalled correctly.

NOTE:
- Do not disconnect the heater valve cable.
- When refilling cooling system, open the heater valve and unscrew the air bleed bolt to bleed air out of the system.

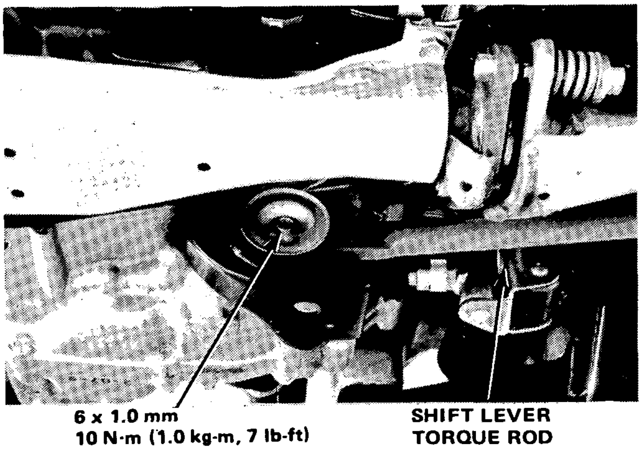
23. On Manual Cars:

- Loosen clutch cable adjusting nut and disconnect clutch cable from release arm.
- Disconnect the transmission ground cable.

NOTE: After installing engine, readjust clutch pedal free play (page 13-3).


TRANSMISSION GROUND CABLE
6 x 1.0 mm
10 N·m (1.0 kg-m, 7 lb-ft)
CLUTCH CABLE ADJUSTING NUT

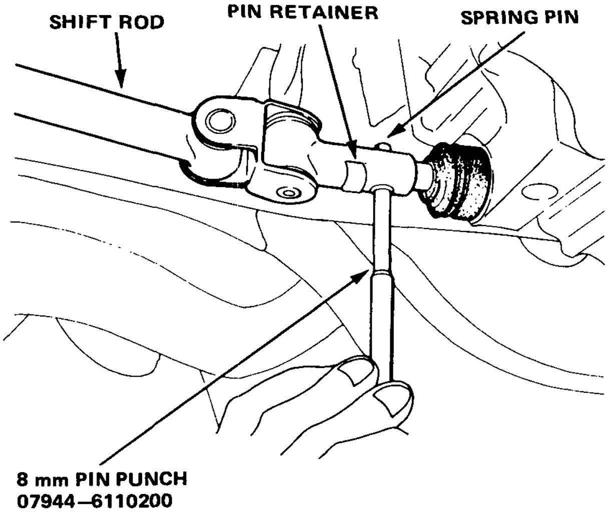
- Disconnect the shift lever torque rod from the clutch housing.


6 x 1.0 mm
10 N·m (1.0 kg-m, 7 lb-ft)
SHIFT LEVER TORQUE ROD

(cont'd)

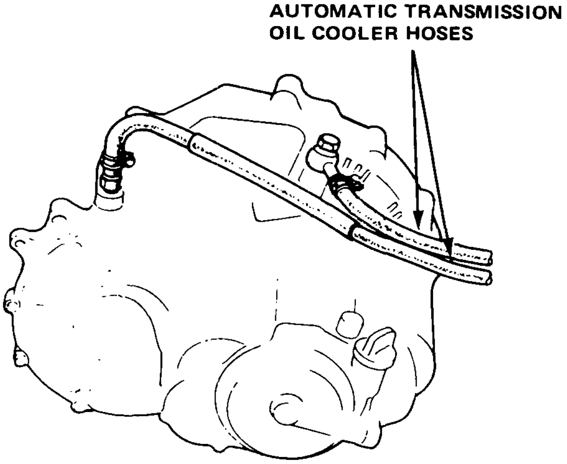
- Slide the pin retainer out of way, drive out the spring pin with pin punch, then disconnect the shift rod.

  NOTE: On reassembly, slide the retainer back into place after driving in the spring pin.


SHIFT ROD
PIN RETAINER
SPRING PIN
8 mm PIN PUNCH
07944–6110200

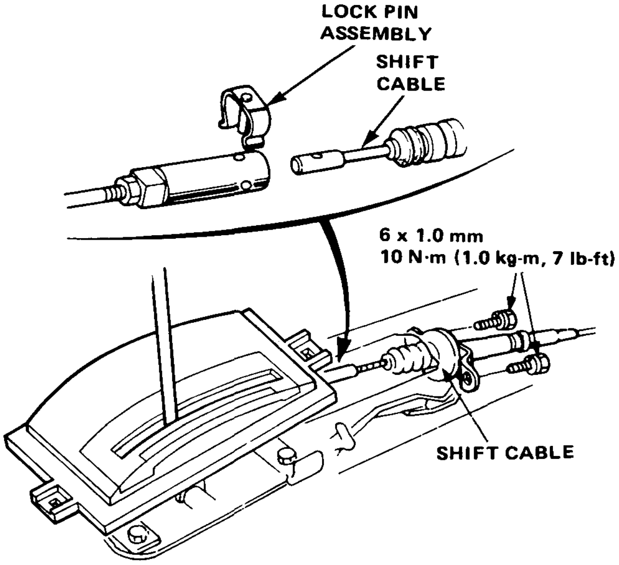
24. On Automatic Cars:

- Disconnect the transmission oil cooler hoses at the transmission, let the ATF drain from hoses, then hang the hoses up out of the way near the radiator.

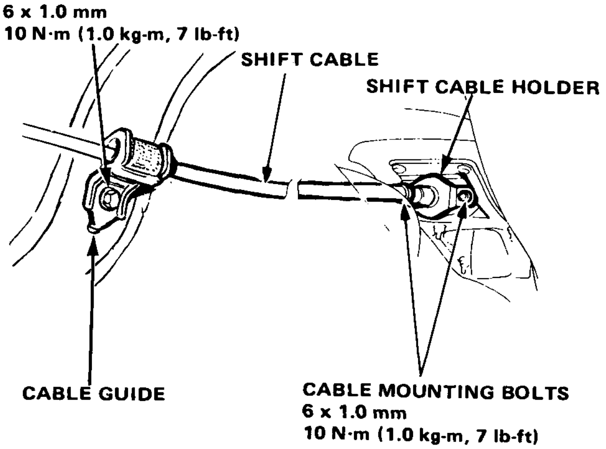

AUTOMATIC TRANSMISSION
OIL COOLER HOSES

- Remove the center console.
- Place the shift lever in reverse, then remove the lock pin from the end of the shift cable.

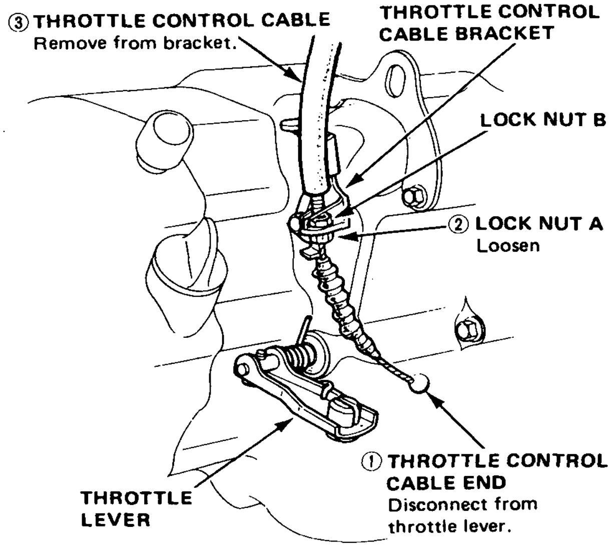
  NOTE: On reassembly, check the cable adjustment.


LOCK PIN
ASSEMBLY
SHIFT
CABLE
6 x 1.0 mm
10 N·m (1.0 kg-m, 7 lb-ft)
SHIFT CABLE

- Unscrew the cable mounting bolts and remove the shift cable holder.


6 x 1.0 mm
10 N·m (1.0 kg-m, 7 lb-ft)
SHIFT CABLE
SHIFT CABLE HOLDER
CABLE GUIDE
CABLE MOUNTING BOLTS
6 x 1.0 mm
10 N·m (1.0 kg-m, 7 lb-ft)

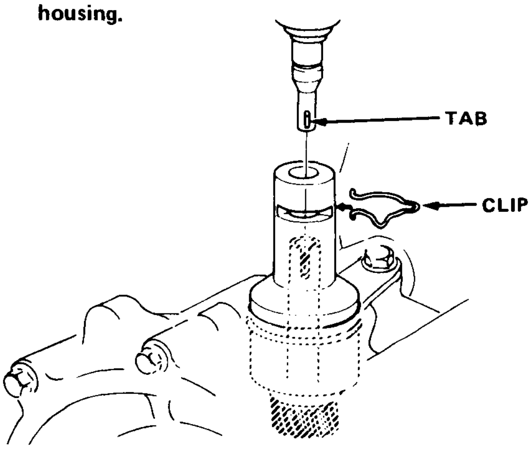
- Remote the throttle control cable in the numbered sequence shown.


③ THROTTLE CONTROL CABLE
Remove from bracket.
THROTTLE CONTROL CABLE BRACKET
LOCK NUT B
② LOCK NUT A
Loosen
① THROTTLE CONTROL CABLE END
Disconnect from throttle lever.
THROTTLE LEVER

CAUTION: Do not loosen lock nut B as it will change the transmission shift points.

25. Remove the cable clip, then pull the speedometer cable out of the holder.

CAUTION: Do not remove the holder because the speedometer gear may fall into the transmission housing.



During Installation:

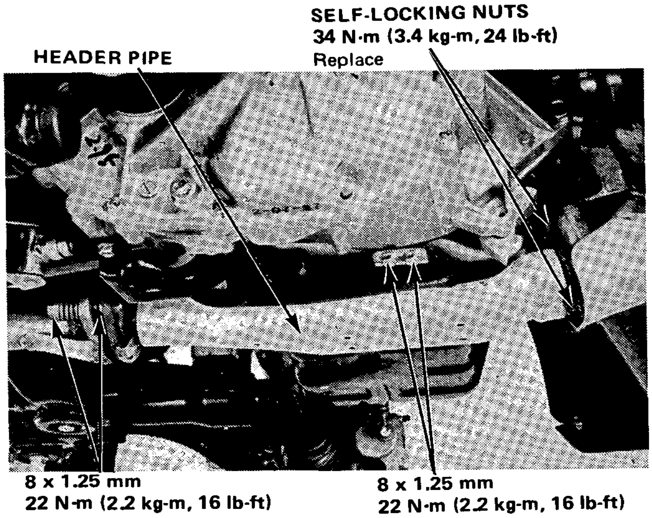
- Align tab on cable end with slot in holder.
- Install clip so bent leg is on groove side.

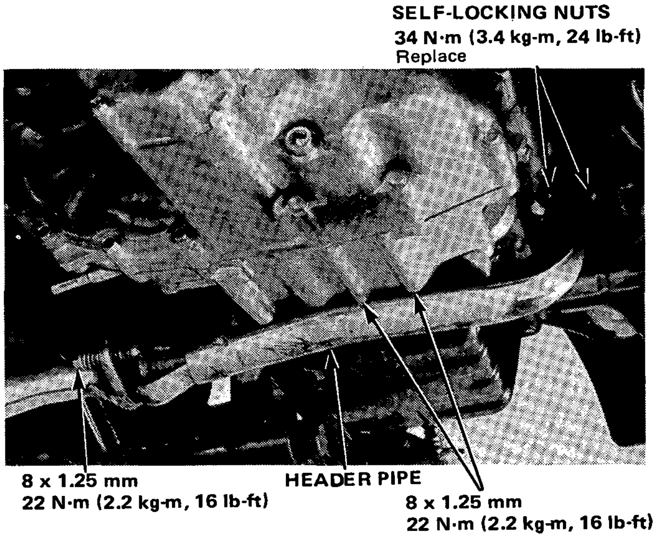
After installing, pull speedometer cable to make sure it is secure.

26. Remove the exhaust header pipe by removing the nuts.

CAUTION:

- **To ease disassembly, squirt penetrating oil on the exhaust manifold studs before removing nuts.**
- **Replace the exhaust gaskets and the self-locking nuts on reassembly.**


SELF-LOCKING NUTS
34 N·m (3.4 kg-m, 24 lb-ft)
Replace
HEADER PIPE
8 x 1.25 mm
22 N·m (2.2 kg-m, 16 lb-ft)
8 x 1.25 mm
22 N·m (2.2 kg-m, 16 lb-ft)

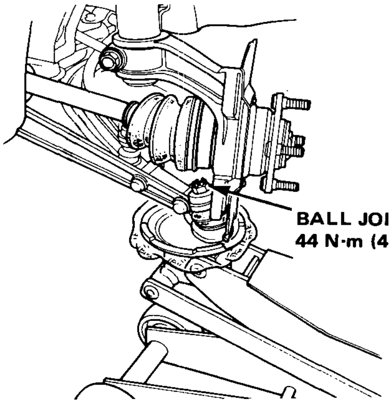

SELF-LOCKING NUTS
34 N·m (3.4 kg-m, 24 lb-ft)
Replace
8 x 1.25 mm
22 N·m (2.2 kg-m, 16 lb-ft)
HEADER PIPE
8 x 1.25 mm
22 N·m (2.2 kg-m, 16 lb-ft)

(cont'd)

Engine Removal/Installation (cont'd)

27. Remove the drive shafts (See page 18-2).

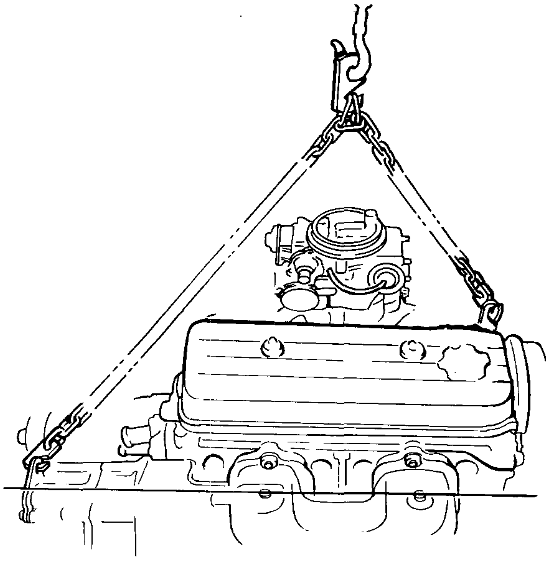
- Place a jack under the radius arm ball joint.
- Remove the ball joint nut and pry off the lower arm.
- Use ball joint remover if it is hard to separate the ball joint from the knuckle.



BALL JOINT NUT
44 N·m (4.4 kg-m, 32 lb-ft)

CAUTION: Make sure to place a jack under the lower arm. Otherwise, the arm may "jump" down when the ball joint is free, because the assembly is under tension from the torsion bar.

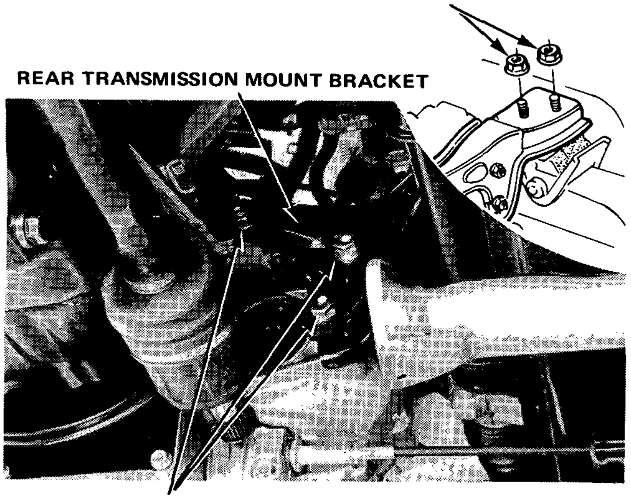
28. Attach a hoist chain to the engine block and raise the hoist just enough to remove slack from chain with slight tension.



29. Remove the rear transmission mount bracket.

8 x 1.25 mm
22 N·m (2.2 kg-m, 16 lb-ft)

REAR TRANSMISSION MOUNT BRACKET

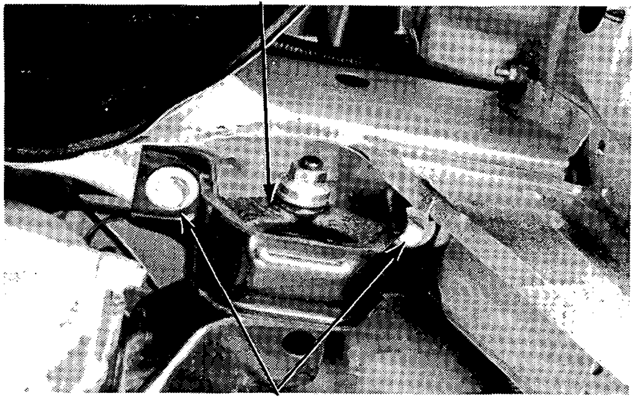


12 x 1.25 mm
65 N·m (6.5 kg-m, 47 lb-ft)
Replace.

NOTE: When installing the transmission mount, make sure that the rubber damper mounting surface is not contaminated with oil.

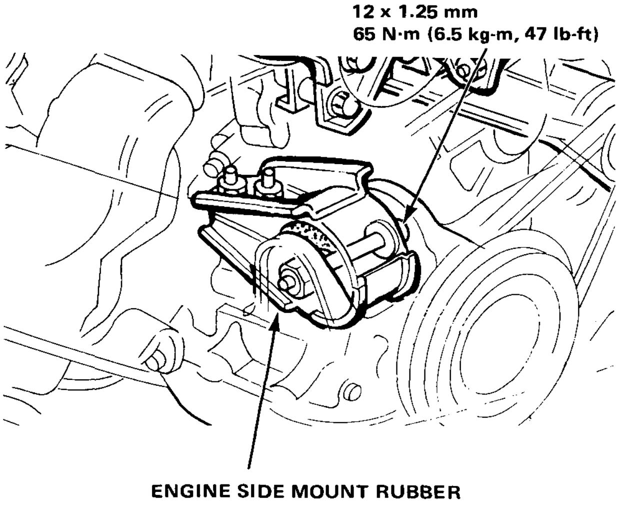
30. Remove the bolts from the transmission mount.

FRONT TRANSMISSION MOUNT



10 x 1.25 mm
39 N·m (3.9 kg-m, 28 lb-ft)

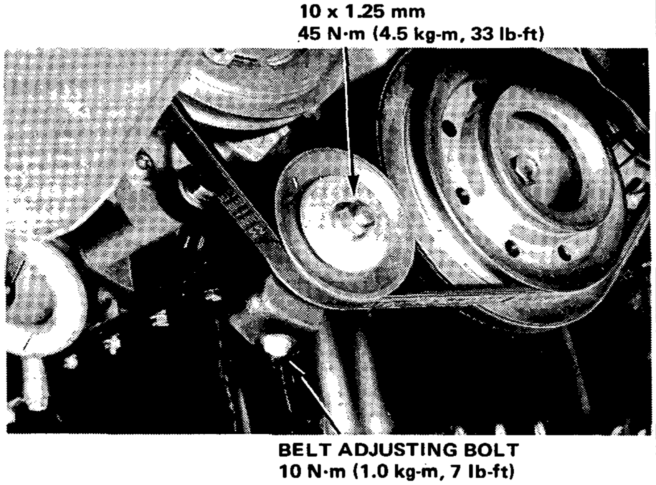
31. Remove the bolt from the engine side mount.

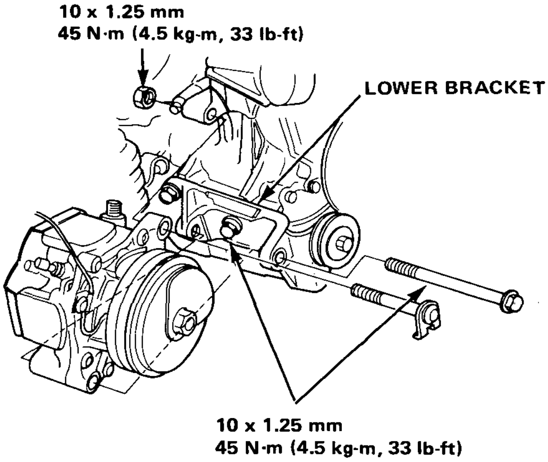

12 x 1.25 mm
65 N·m (6.5 kg-m, 47 lb-ft)
ENGINE SIDE MOUNT RUBBER

32. On Cars with A/C:

- Loosen the belt adjusting bolt and idler pulley nut.
- Remove the compressor mounting bolts, then lift the compressor out of the bracket with hoses attached, and wire it up to the front beam.

NOTE: The compressor can be moved without discharging the air conditioner system.

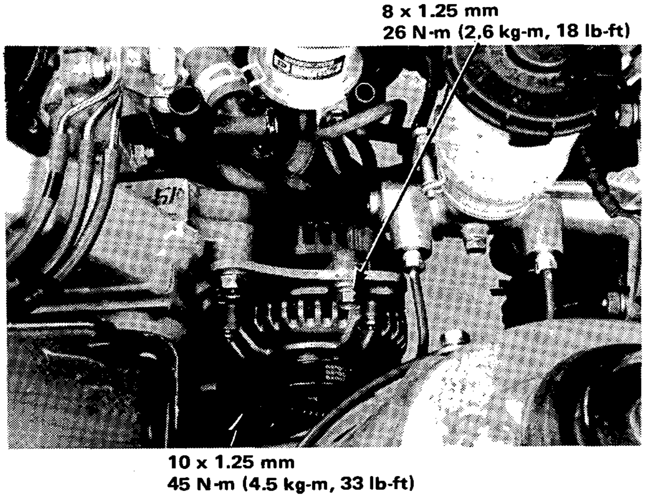

10 x 1.25 mm
45 N·m (4.5 kg-m, 33 lb-ft)
BELT ADJUSTING BOLT
10 N·m (1.0 kg-m, 7 lb-ft)


10 x 1.25 mm
45 N·m (4.5 kg-m, 33 lb-ft)
LOWER BRACKET
10 x 1.25 mm
45 N·m (4.5 kg-m, 33 lb-ft)

- Remove the lower compressor mounting bracket.

33. Remove the alternator:

- Disconnect the alternator wire harness connectors.
- Remove the belt adjusting bolt and remove the belt.
- Remove the alternator mount bolt and remove the alternator.


8 x 1.25 mm
26 N·m (2.6 kg-m, 18 lb-ft)
10 x 1.25 mm
45 N·m (4.5 kg-m, 33 lb-ft)

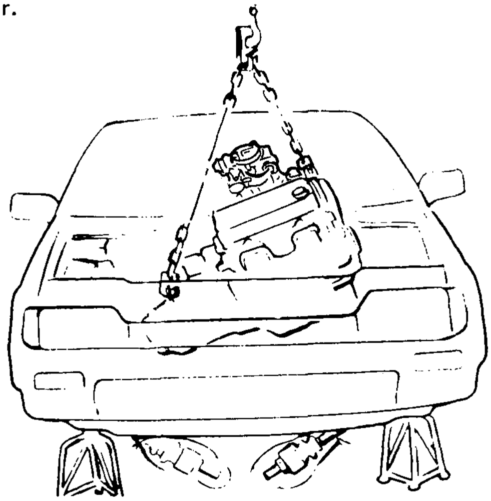
(cont'd)

Engine Removal/Installation (cont'd)

34. Check that the engine/transaxle is completely free of vacuum, fuel, and coolant hoses, and electrical wires.

35. Slowly raise engine approximately 6" and stop. Check once again that all wires and hoses have been disconnected from engine/transaxle.

36. Raise engine all the way and remove the from the car.



NOTE: Coat all precision finished surfaces with clean engine oil or grease. Tie plastic bags over the drive shaft ends.

37. Install the engine in the reverse order of removal. After the engine is in place:

- Torque engine mount bolts in sequence shown on next page.

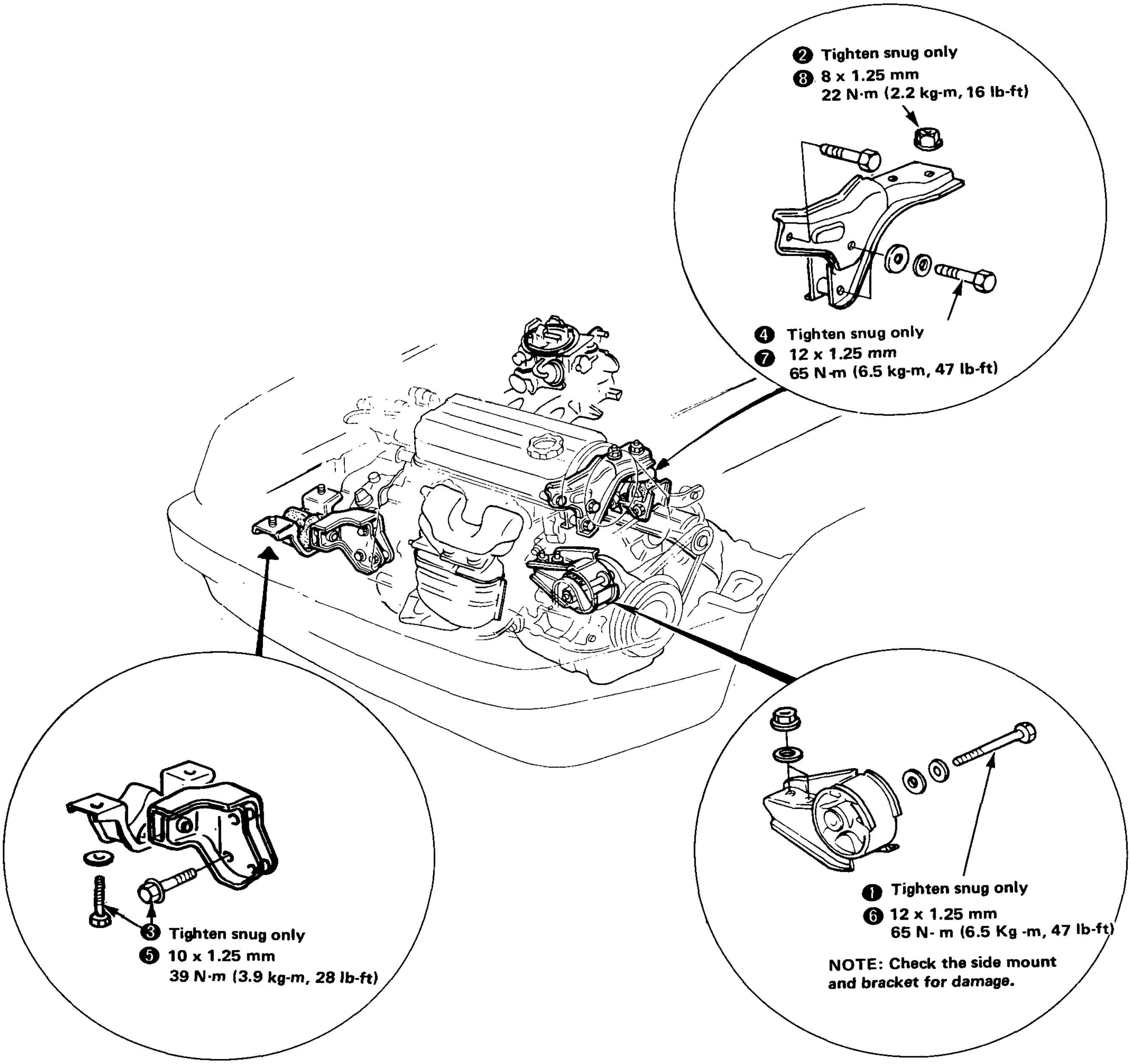
  CAUTION: Failure to tighten the bolts in the proper sequence can cause excessive noise and vibration, and reduce bushing life; check that the bushings are not twisted or offset.

- Check that the spring clip on the end of each driveshaft clicks into the differential.

  CAUTION: Use new spring clips on installation.

- Inspection for fuel leakage. (Coupe)
  - After assembling fuel line parts, turn ON the ignition switch (do not operate the starter) so that the fuel pump is operated for approximately two seconds and the fuel is pressurized. Repeat this operation two or three times and check whether any fuel leakage has occurred in any of the various points in the fuel line.
- Bleed air from the cooling system at the bleed bolt with the heater valve open.
- Adjust the throttle cable and choke cable tension.
- Adjust the alternator belt tension.
- Check the clutch pedal free play.
- Check that the transmission shifts into gear smoothly.
- Connect the air conditioning hoses and wiring.
- Clean battery posts and cable terminals with sandpaper, assemble, then apply grease to prevent corrosion.

ENGINE MOUNT TORQUE SEQUENCE

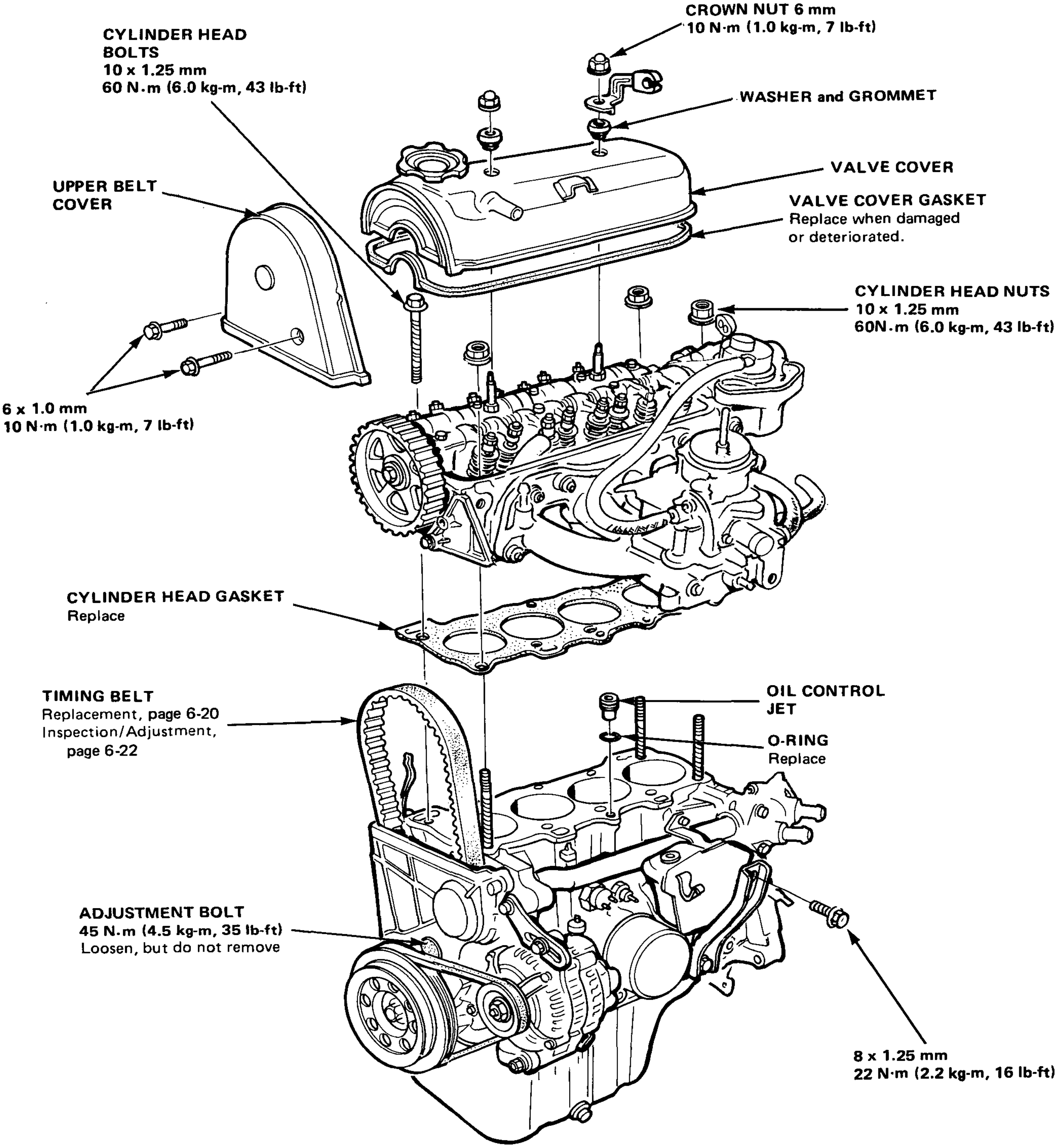

❷ Tighten snug only
❽ 8 x 1.25 mm
22 N·m (2.2 kg-m, 16 lb-ft)
❹ Tighten snug only
❼ 12 x 1.25 mm
65 N·m (6.5 kg-m, 47 lb-ft)
❸ Tighten snug only
❺ 10 x 1.25 mm
39 N·m (3.9 kg-m, 28 lb-ft)
❶ Tighten snug only
❻ 12 x 1.25 mm
65 N- m (6.5 Kg -m, 47 lb-ft)
NOTE: Check the side mount and bracket for damage.

Cylinder Head/Valve Train

Illustrated Index

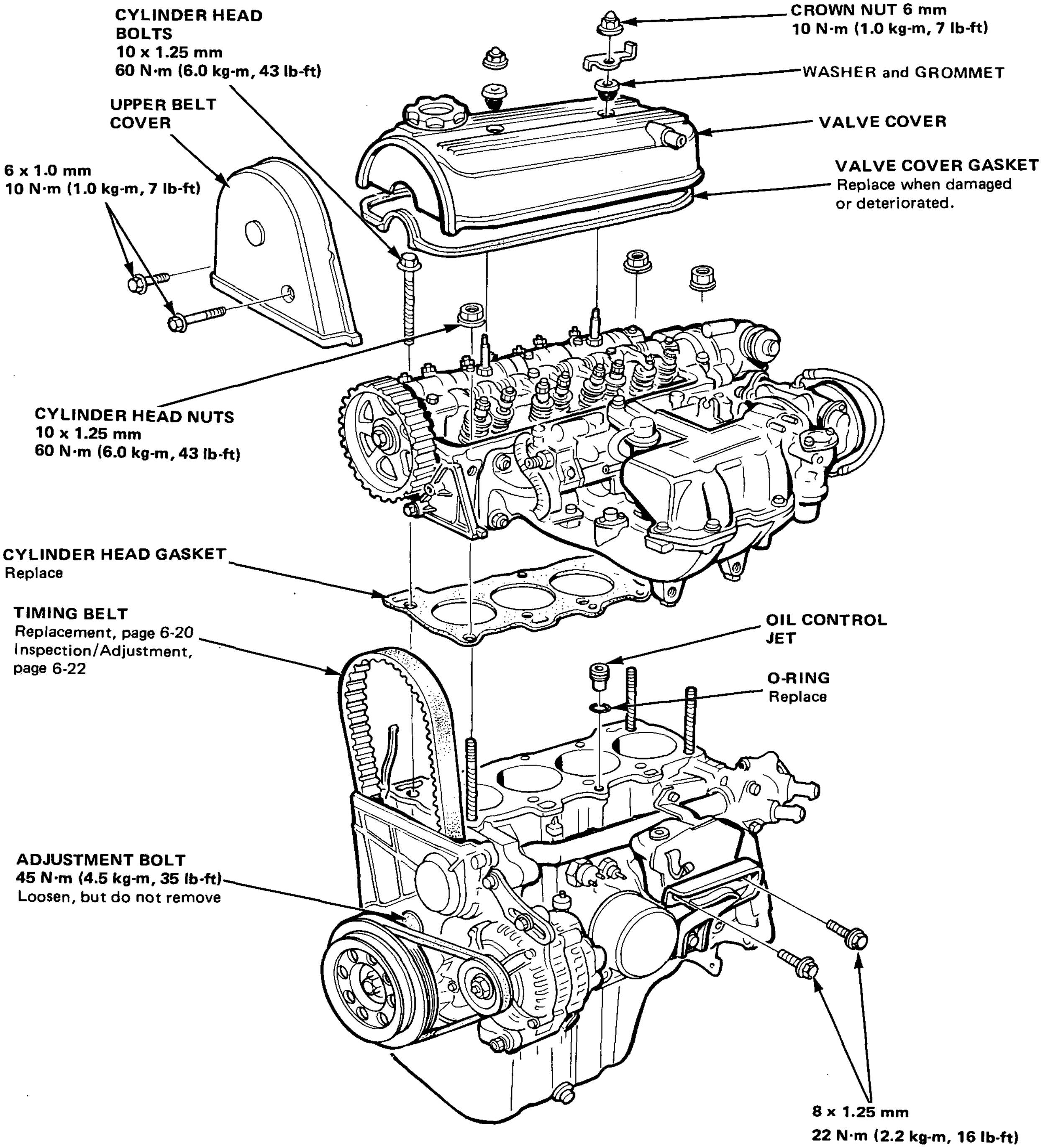
(1500 shown; 1300 and 1200 similar)

NOTE: Use new O-rings and gaskets whenever reassembling.



CROWN NUT 6 mm
10 N·m (1.0 kg-m, 7 lb-ft)
CYLINDER HEAD BOLTS
10 x 1.25 mm
60 N.m (6.0 kg-m, 43 lb-ft)
WASHER and GROMMET
VALVE COVER
UPPER BELT COVER
VALVE COVER GASKET
Replace when damaged or deteriorated.
CYLINDER HEAD NUTS
10 x 1.25 mm
60N.m (6.0 kg-m, 43 lb-ft)
6 x 1.0 mm
10 N·m (1.0 kg-m, 7 lb-ft)
CYLINDER HEAD GASKET
Replace
TIMING BELT
Replacement, page 6-20
Inspection/Adjustment, page 6-22
OIL CONTROL JET
O-RING
Replace
ADJUSTMENT BOLT
45 N.m (4.5 kg-m, 35 lb-ft)
Loosen, but do not remove
8 x 1.25 mm
22 N·m (2.2 kg-m, 16 lb-ft)

(Coupe)

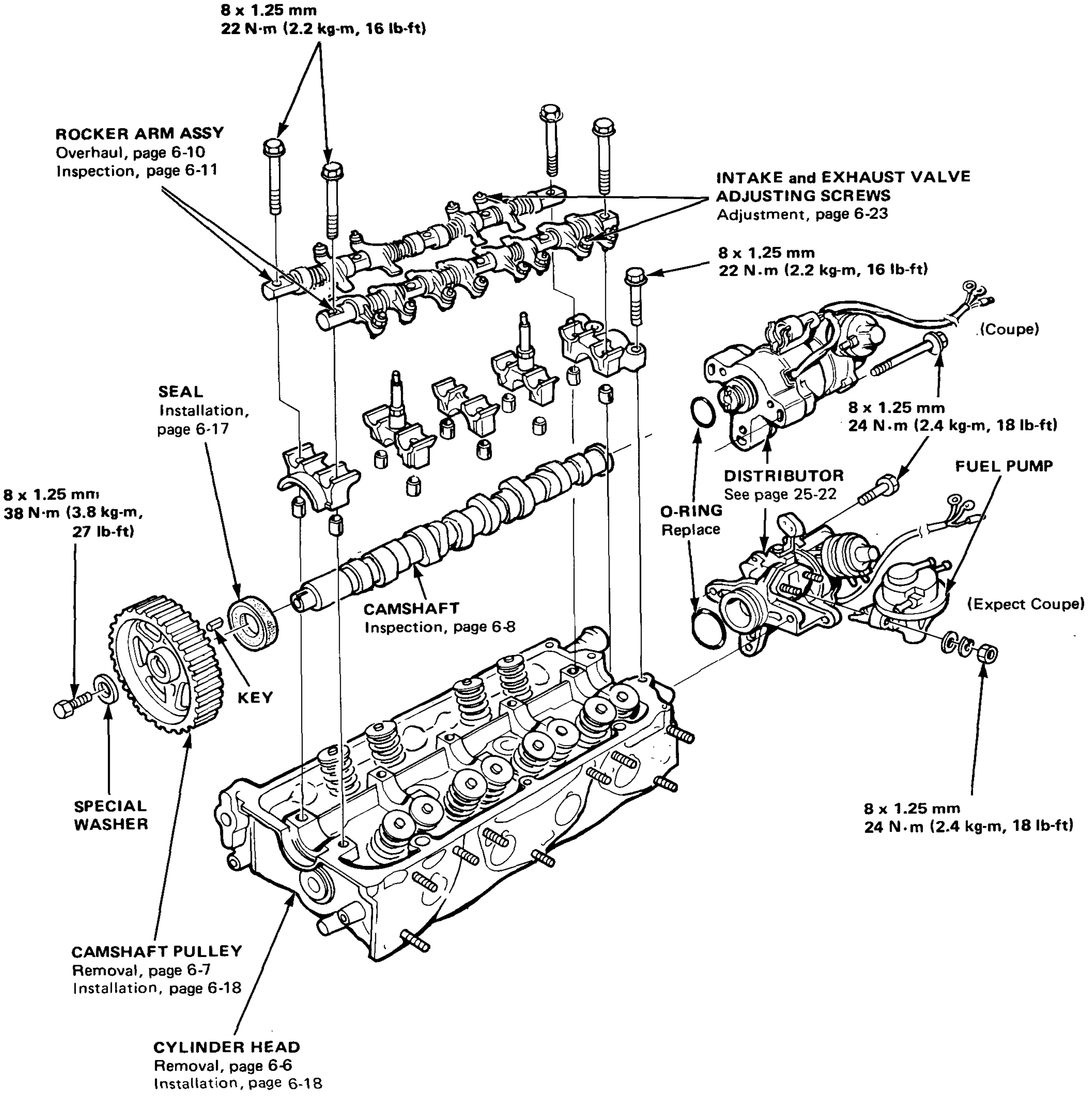

CYLINDER HEAD BOLTS
10 x 1.25 mm
60 N·m (6.0 kg-m, 43 lb-ft)
UPPER BELT COVER
6 x 1.0 mm
10 N·m (1.0 kg-m, 7 lb-ft)
CROWN NUT 6 mm
10 N·m (1.0 kg-m, 7 lb-ft)
WASHER and GROMMET
VALVE COVER
VALVE COVER GASKET
Replace when damaged or deteriorated.
CYLINDER HEAD NUTS
10 x 1.25 mm
60 N·m (6.0 kg-m, 43 lb-ft)
CYLINDER HEAD GASKET
Replace
TIMING BELT
Replacement, page 6-20
Inspection/Adjustment, page 6-22
OIL CONTROL JET
O-RING
Replace
ADJUSTMENT BOLT
45 N·m (4.5 kg-m, 35 lb-ft)
Loosen, but do not remove
8 x 1.25 mm
22 N·m (2.2 kg-m, 16 lb-ft)

(cont'd)

Cylinder Head/Valve Train

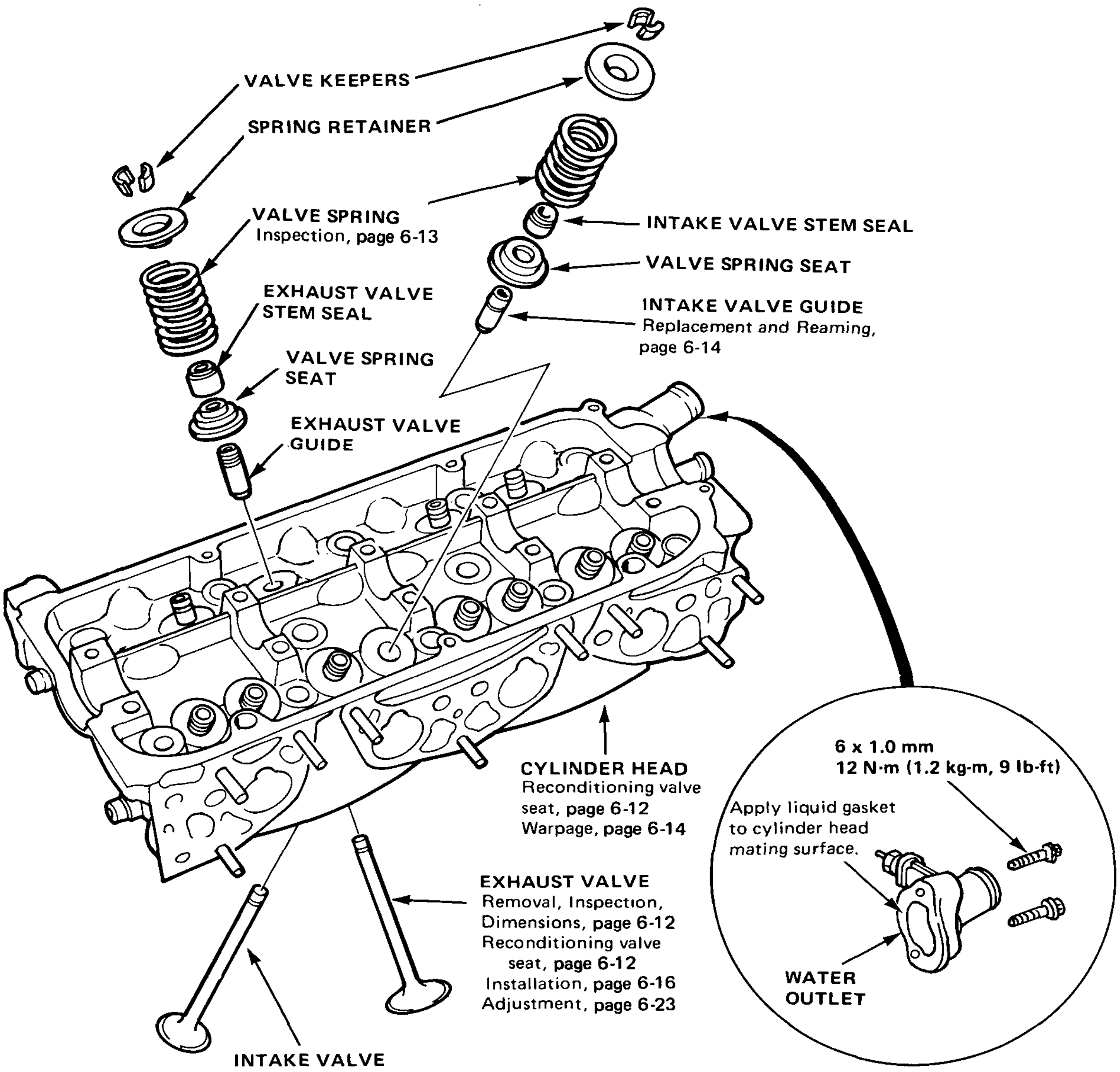
Illustrated (cont'd)

(1500 shown; 1300 and 1200 similar)



8 x 1.25 mm
22 N·m (2.2 kg-m, 16 lb-ft)
ROCKER ARM ASSY
Overhaul, page 6-10
Inspection, page 6-11
INTAKE and EXHAUST VALVE ADJUSTING SCREWS
Adjustment, page 6-23
8 x 1.25 mm
22 N·m (2.2 kg-m, 16 lb-ft)
(Coupe)
SEAL
Installation, page 6-17
8 x 1.25 mm
24 N·m (2.4 kg-m, 18 lb-ft)
DISTRIBUTOR
See page 25-22
FUEL PUMP
8 x 1.25 mm
38 N·m (3.8 kg-m, 27 lb-ft)
O-RING
Replace
CAMSHAFT
Inspection, page 6-8
(Expect Coupe)
KEY
SPECIAL WASHER
8 x 1.25 mm
24 N·m (2.4 kg-m, 18 lb-ft)
CAMSHAFT PULLEY
Removal, page 6-7
Installation, page 6-18
CYLINDER HEAD
Removal, page 6-6
Installation, page 6-18

CAUTION: To avoid damaging the cylinder head, wait until the coolant temperature drops below 38°C (100°F) before removing it.


VALVE KEEPERS
SPRING RETAINER
VALVE SPRING
Inspection, page 6-13
EXHAUST VALVE STEM SEAL
VALVE SPRING SEAT
EXHAUST VALVE GUIDE
INTAKE VALVE STEM SEAL
VALVE SPRING SEAT
INTAKE VALVE GUIDE
Replacement and Reaming, page 6-14
CYLINDER HEAD
Reconditioning valve seat, page 6-12
Warpage, page 6-14
EXHAUST VALVE
Removal, Inspection, Dimensions, page 6-12
Reconditioning valve seat, page 6-12
Installation, page 6-16
Adjustment, page 6-23
INTAKE VALVE
6 x 1.0 mm
12 N·m (1.2 kg-m, 9 lb-ft)
Apply liquid gasket to cylinder head mating surface.
WATER OUTLET

Cylinder Head Removal (engine removal not required)

CAUTION: Do not remove the cylinder head until the coolant temperature drops below 38°C (100°F).

NOTE:
- Inspect the timing belt before removing the cylinder head.
- Before removal of the cylinder head, turn the flywheel so that the No. 1 cylinder is at top-dead-center (see page 6-21)
- Mark all emissions hoses before disconnecting them.

1. Disconnect the negative terminal from the battery.
2. Drain the cooling system.
3. Remove the air cleaner cover (Page 5-4).
4. Disconnect the air intake duct and vacuum hose (Page 5-6). (Coupe)
5. Remove the brake booser vacuum tube from the intake manifold.
6. Remove the engine secondary ground cable from the valve cover (Page 5-4).
7. Disconnect the electrical wires from the fuel cut-off solenoid valve, automatic chock and thermosenser.
8. Disconnect the hoses from the charcoal canister.
9. Disconnect the No. 1 control box emission hoses from the tubing manifold (Page 5-5).
10. On cars equiped with air conditioning, disconnect the idle control solenoid hoses.

< Expect Coupe >

11. Disconnect the fuel lines (Page 5-5).

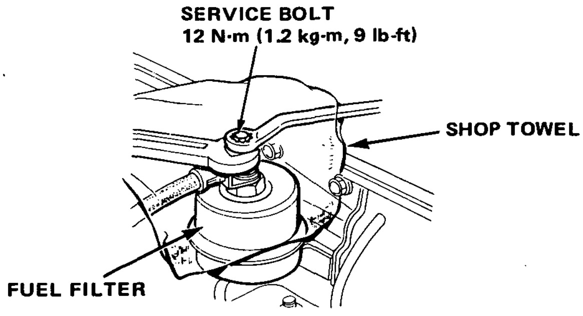
WARNING Do not smoke while working on fuel system. Keep open flame or spark away from work area.

12. Remove the spark plug caps from the spark plugs, then remove the distributor assembly (Page 5-5).
13. Disconnect the throttle cable and chock cable at the carburetor (Page 5-5).
    cont'd : 23

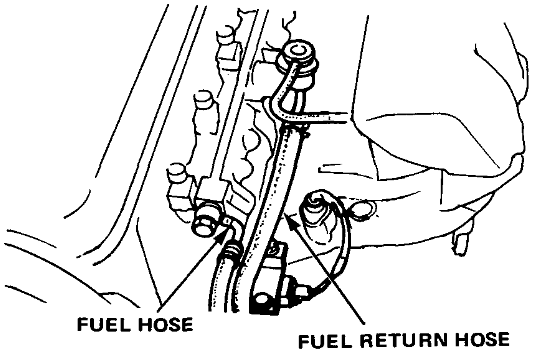
< Coupe >

14. Relieve fuel pressure (Page 5-6).

WARNING Do not smoke while working on fuel system, keep open flame or spark away from work area. Drain fuel only into an approved container.

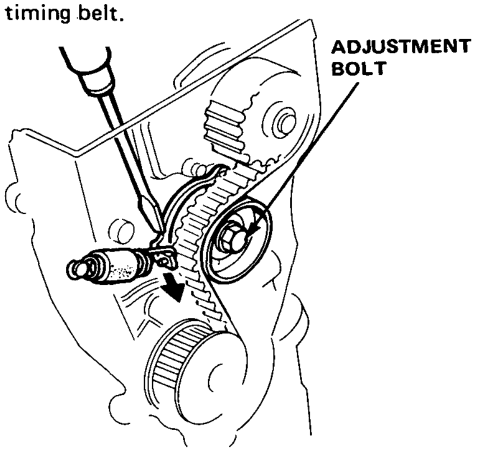


15. Disconnect the throttle cable at the throttle body (Page 5-6).
16. Disconnect the sub engine harness connectors (Page 5-7).
17. Disconnect the fuel hose and fuel return hose (Page 5-6).

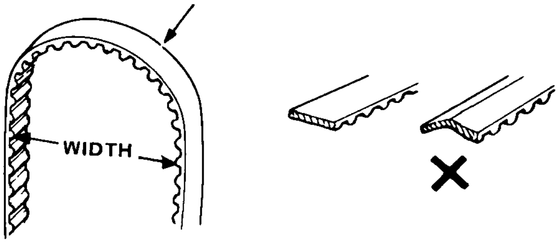


18. Disconnect the TA sensor connector.
19. Remove the injector holder from the intake manifold.
20. Disconnect the TW sensor connector from the cylinder head.
21. Disconnect the throttle sensor connector from the throttle body.
22. Remove the spark plug caps from the spark plugs, then remove the distributor assembly (Page 5-7).
23. Disconnect the upper radiator hose, heater inlet hose, and bypass inlet hose from the cylinder head (page 5-7).
24. Remove the hose between the thermostat housing and the intake manifold.
25. Remove the bolts attaching the exhaust manifold and bracket, then remove the manifold.
26. Remove the bolts attaching the intake manifold and bracket.
27. Disconnect the hose from the intake manifold to the breather chamber.
28. Remove the valve cover and the timing belt upper cover.

29. Loosen the tensioner adjustment bolt, then remove the timing belt.


ADJUSTMENT BOLT

CAUTION: Do not crimp or bend timing belt more than 90° or less than 25 mm (1 in.) in diameter.



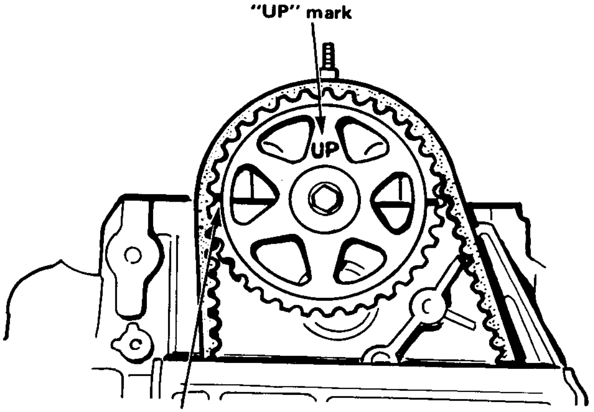
30. Remove the cylinder head bolts, then remove the cylinder head.

    CAUTION: To prevent warpage, unscrew bolts 1/3 turn each time and repeat sequence until loose.

31. Remove the exhaust manifold from the cylinder head.

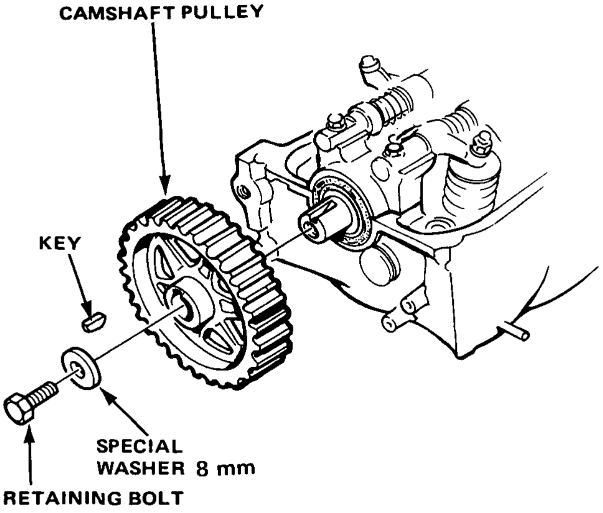
Camshaft Pulley Removal

1. To ease reassembly, turn the pulley until the "UP" mark faces up, and the front timing mark is aligned with the valve cover surface.



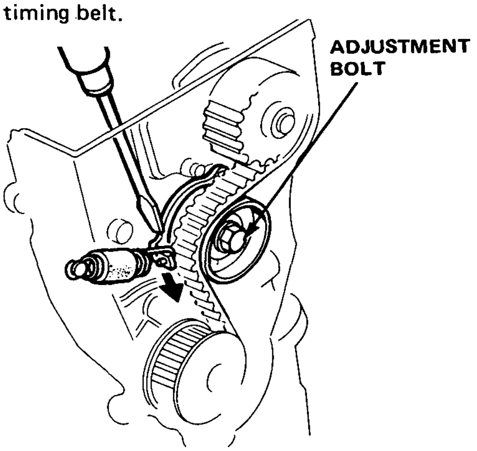
Front timing mark on pulley aligned with the valve cover surface.

2. Remove the pulley retaining bolt and washer, then remove the pulley.

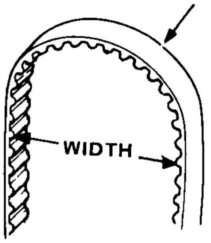

CAMSHAFT PULLEY
KEY
SPECIAL WASHER 8 mm
RETAINING BOLT

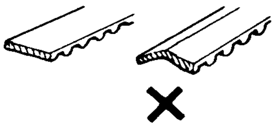
NOTE: Before removing rocker arm assembly, check camshaft end play.

29. Loosen the tensioner adjustment bolt, then remove the timing belt.


ADJUSTMENT BOLT

CAUTION: Do not crimp or bend timing belt more than 90° or less than 25 mm (1 in.) in diameter.





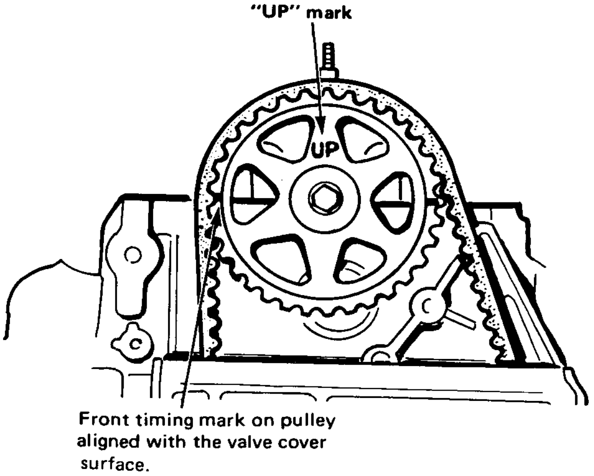
30. Remove the cylinder head bolts, then remove the cylinder head.

    CAUTION: To prevent warpage, unscrew bolts 1/3 turn each time and repeat sequence until loose.

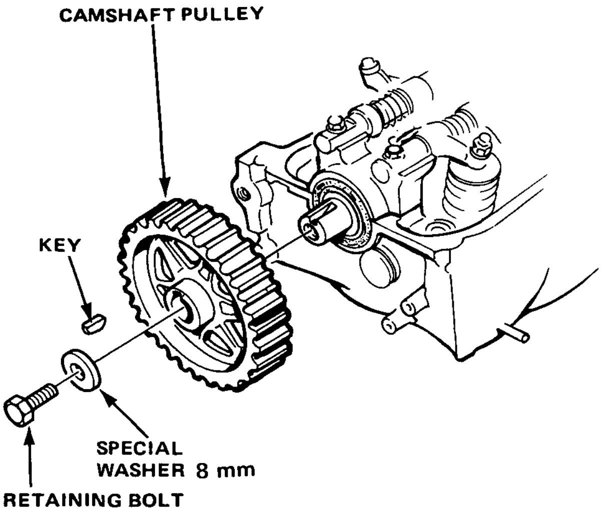
31. Remove the exhaust manifold from the cylinder head.

Camshaft Pulley Removal

1. To ease reassembly, turn the pulley until the "UP" mark faces up, and the front timing mark is aligned with the valve cover surface.


"UP" mark
UP
Front timing mark on pulley aligned with the valve cover surface.

2. Remove the pulley retaining bolt and washer, then remove the pulley.

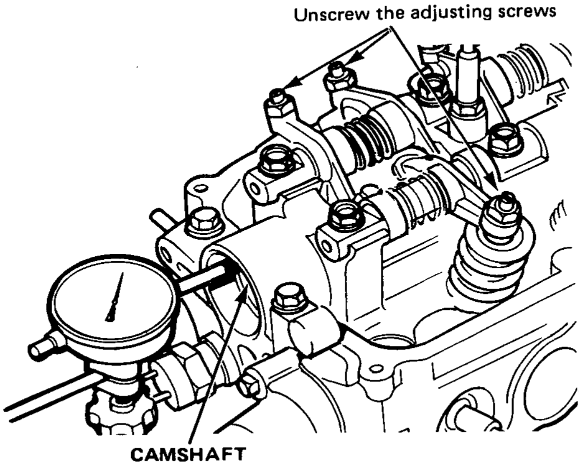

CAMSHAFT PULLEY
KEY
SPECIAL WASHER 8 mm
RETAINING BOLT

NOTE: Before removing rocker arm assembly, check camshaft end play.

Camshaft Inspection

1. Seat camshaft by prying it toward distributor end of head with screwdriver.
2. Zero dial indicator against end of distributor drive, then pry camshaft back toward it, and read end play.

   Camshaft End Play:
   Standard (New): 0.05–0.15 mm (0.002–0.006 in.)
   Service Limit: 0.5 mm (0.02 in.)



3. Remove the rocker arm bolts, then remove the rocker assembly from the cylinder head.

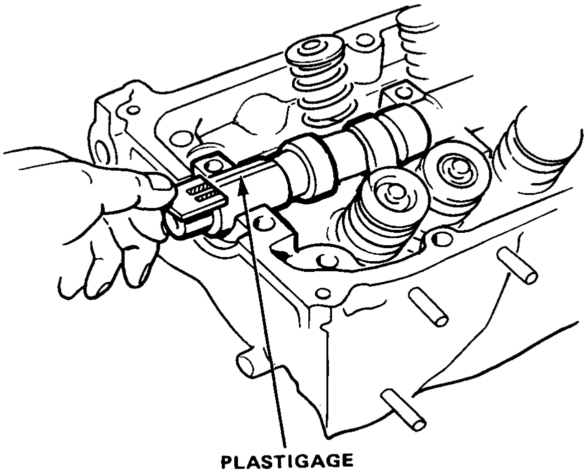
   NOTE: Unscrew the rocker arm bolts, two turns at a time, in a criss-cross pattern, to prevent damaging valves or rocker assembly.

- Lift camshaft out of cylinder head, wipe clean, then inspect lift ramps. Replace camshaft if lobes are pitted, scored, or excessively worn.
- Clean the camshaft bearing surfaces in the cylinder head, then set camshaft back in place.
- Insert plastigage strip across each journal.

  NOTE: Do not rotate camshaft during inspection.
- Install the rocker arm assembly and torque bolts to values and in sequence shown on page 6-17, then remove the bolts and the rocker arm assembly.

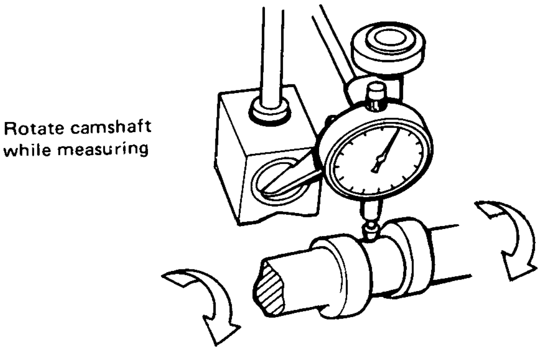
4. Measure widest portion of plastigage on each journal.

   Camshaft Bearing Radial Clearance:
   Standard (New): 0.050–0.098 mm (0.002–0.004 in.)
   Service Limit: 0.15 mm (0.006 in.)



5. If camshaft bearing radial clearance is out of tolerance:
   - And camshaft has already been replaced, you must replace the cylinder head.
   - If camshaft has not been replaced, first check total runout with the camshaft supported on V-blocks.

     Camshaft Total Runout:
     Standard (New): 0.03 mm (0.001 in.)
     Service Limit: 0.06 mm (0.002 in.)



6. If the total runout is within tolerance, replace the cylinder head.

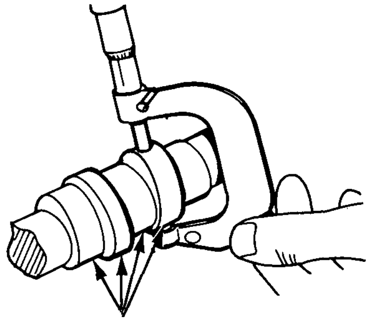
7. If the total runout is not within tolerance, replace the camshaft and recheck the bearing clearance in the cylinder head.
   - If the bearing clearance is still not within tolerance, replace the cylinder head.

[Coupe (PGM-FI)]
Intake Standard: 40.865 mm (1.6089 in.)
Exhaust Standard: 40.884 mm (1.6096 in.)

[1500]
Intake Standard: 40.370 mm (1.5894 in.)
Exhaust Standard: 40.391 mm (1.5902 in.)

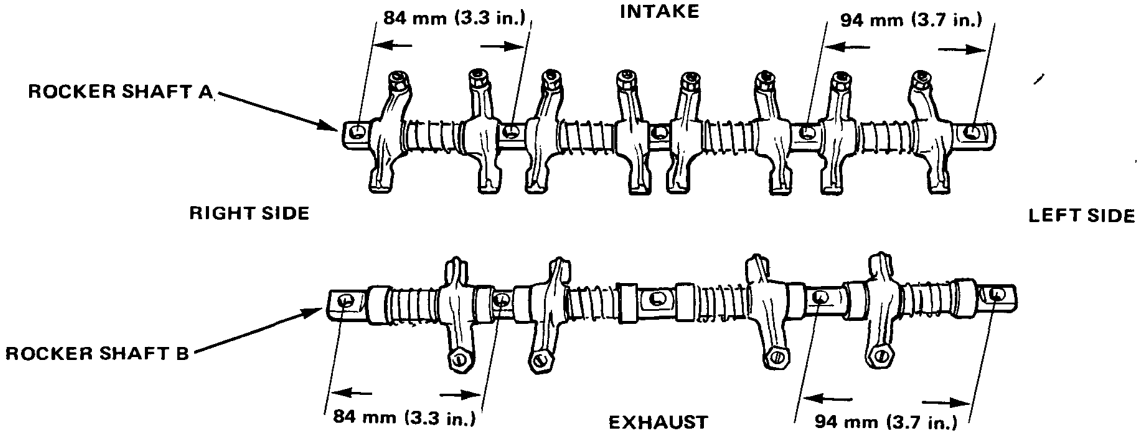
[1300]
Intake Standard: 40.056 mm (1.5770 in.)
Exhaust Standard: 40.078 mm (1.5779 in.)

[1200]
Intake Standard: 39.095 mm (1.5392 in.)
Exhaust Standard: 39.120 mm (1.5402 in.)

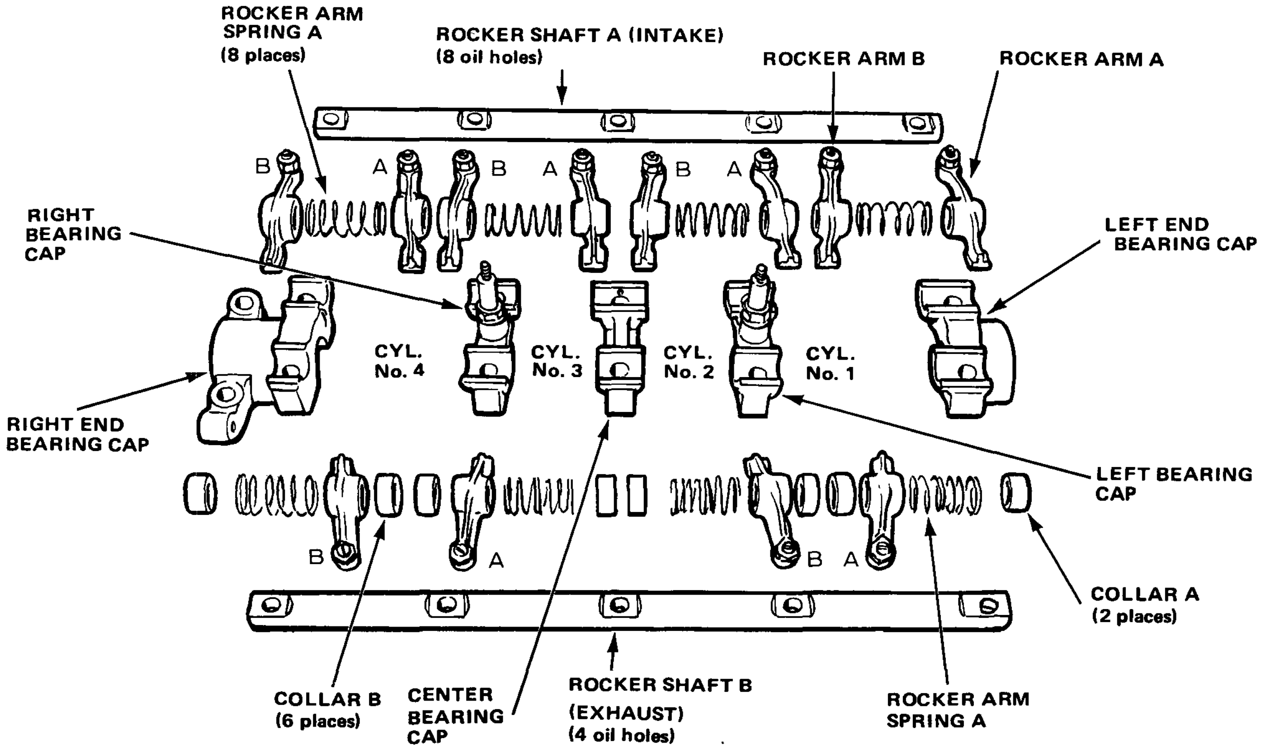


Cylinder Head/Valve Train

Rocker Arm Overhaul



84 mm (3.3 in.)
INTAKE
94 mm (3.7 in.)
ROCKER SHAFT A
RIGHT SIDE
LEFT SIDE
ROCKER SHAFT B
84 mm (3.3 in.)
EXHAUST
94 mm (3.7 in.)



ROCKER ARM SPRING A (8 places)
ROCKER SHAFT A (INTAKE) (8 oil holes)
ROCKER ARM B
ROCKER ARM A
B
A
B
A
B
A
RIGHT BEARING CAP
LEFT END BEARING CAP
CYL. No. 4
CYL. No. 3
CYL. No. 2
CYL. No. 1
RIGHT END BEARING CAP
LEFT BEARING CAP
B
A
B
A
COLLAR A (2 places)
COLLAR B (6 places)
CENTER BEARING CAP
ROCKER SHAFT B (EXHAUST) (4 oil holes)
ROCKER ARM SPRING A

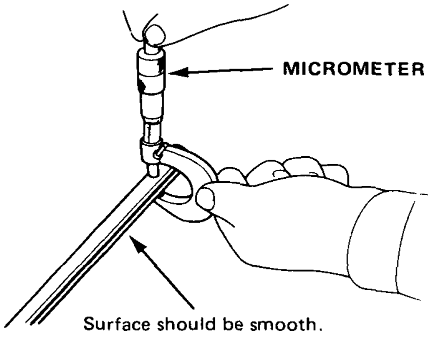
NOTE:

- Identify parts as they are removed to ensure reinstallation in original locations.
- Inspect rocker shaft and rocker arms (page 6-11).

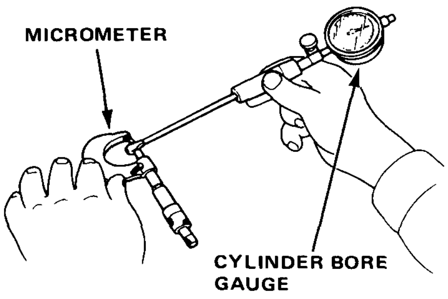
Rocker Arm Clearance

Measure both the intake/exhaust rocker shaft and auxiliary rocker shaft.

1. Measure diameter of shaft at first rocker location.

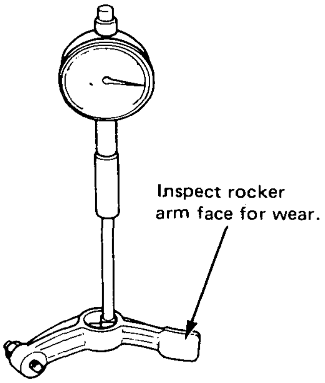

MICROMETER
Surface should be smooth.

2. Zero gauge to shaft diameter.


MICROMETER
CYLINDER BORE GAUGE

3. Measure inside diameter of rocker arm and check for out-of-round condition.

Rocker Arm Radial Clearance:
Service Limit: 0.08 mm (0.003 in.)

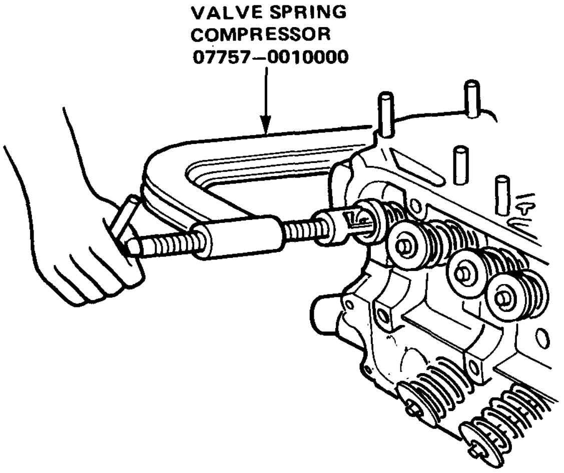

Inspect rocker arm face for wear.

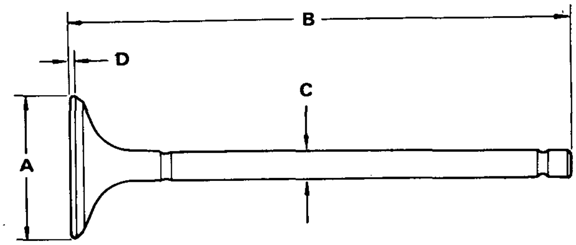
Repeat for all rockers. If over limit, replace rocker shaft and all over-tolerance rocker arms.

Intake and Exhaust Valve Replacement

NOTE: Identify valves and valve springs as they are removed so that each item can be reinstalled in its original position.

1. Tap each valve stem with a plastic mallet to loosen valve keepers before installing spring compressor.
2. Install spring compressor. Compress spring and remove valve keepers.


VALVE SPRING COMPRESSOR 07757–0010000



Intake Valve Dimensions

A Standard (New): 26.9–27.1 mm (1.059–1.067 in.)
B Standard (New): 112.56–112.86 mm (4.431–4.443 in.)
C Standard (New): 6.58–6.59 mm (0.2591–0.2594 in.)
C Service Limit: 6.55 mm (0.258 in.)
D Standard (New): 1.05–1.35 mm (0.041–0.053 in.)

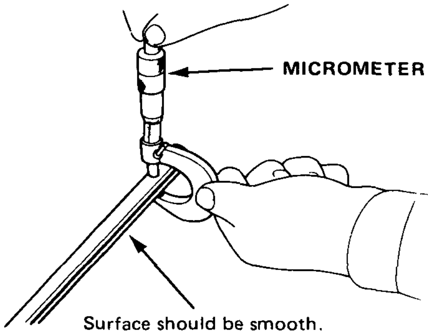
Exhaust Valve Dimensions

A Standard (New): 31.9–32.1 mm (1.138–1.146 in.)
B Standard (New): 113.66–113.96 mm (4.475–4.487 in.)
C Standard (New): 6.55–6.56 mm (0.2579–0.2583 in.)
C Service Limit: 6.52 mm (0.257 in.)
D Standard (New): 1.65–1.95 mm (0.065–0.077 in.)

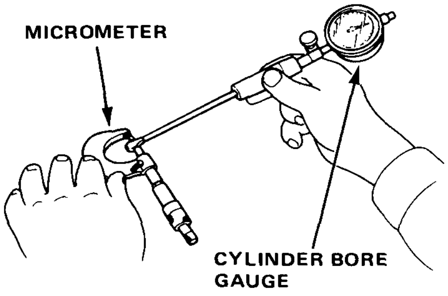
Rocker Arm Clearance

Measure both the intake/exhaust rocker shaft and auxiliary rocker shaft.

1. Measure diameter of shaft at first rocker location.

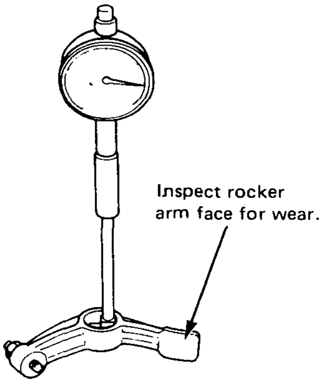

MICROMETER
Surface should be smooth.

2. Zero gauge to shaft diameter.


MICROMETER
CYLINDER BORE GAUGE

3. Measure inside diameter of rocker arm and check for out-of-round condition.

   Rocker Arm Radial Clearance:
   Service Limit: 0.08 mm (0.003 in.)

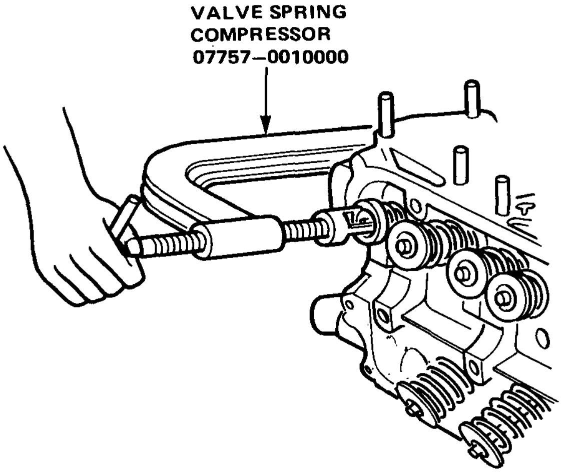

Inspect rocker arm face for wear.

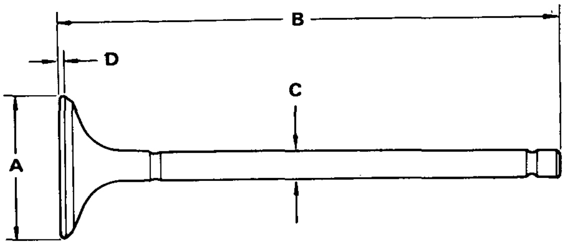
Repeat for all rockers. If over limit, replace rocker shaft and all over-tolerance rocker arms.

Intake and Exhaust Valve Replacement

NOTE: Identify valves and valve springs as they are removed so that each item can be reinstalled in its original position.

1. Tap each valve stem with a plastic mallet to loosen valve keepers before installing spring compressor.
2. Install spring compressor. Compress spring and remove valve keepers.


VALVE SPRING COMPRESSOR 07757–0010000



Intake Valve Dimensions

A Standard (New): 26.9–27.1 mm (1.059–1.067 in.)
B Standard (New): 112.56–112.86 mm (4.431–4.443 in.)
C Standard (New): 6.58–6.59 mm (0.2591–0.2594 in.)
C Service Limit: 6.55 mm (0.258 in.)
D Standard (New): 1.05–1.35 mm (0.041–0.053 in.)

Exhaust Valve Dimensions

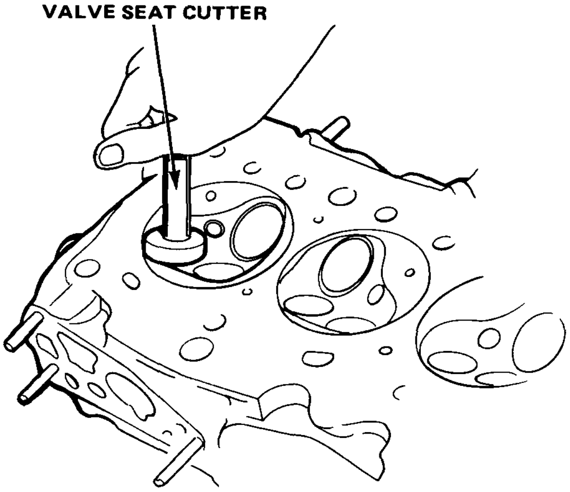
A Standard (New): 31.9–32.1 mm (1.138–1.146 in.)
B Standard (New): 113.66–113.96 mm (4.475–4.487 in.)
C Standard (New): 6.55–6.56 mm (0.2579–0.2583 in.)
C Service Limit: 6.52 mm (0.257 in.)
D Standard (New): 1.65–1.95 mm (0.065–0.077 in.)

Cylinder Head/Valve Train

Valve Seat Reconditioning

1. Renew the valve seats in cylinder head using a valve seat cutter.

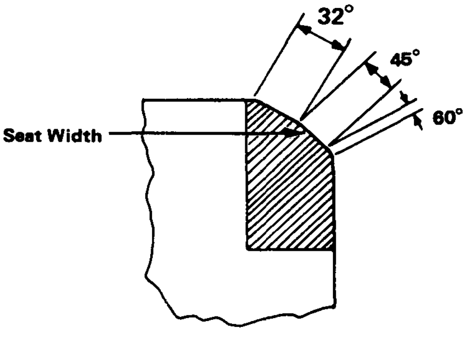
   NOTE: If guides are worn (page 6-14), replace them (page 6-15) before cutting valve seats.



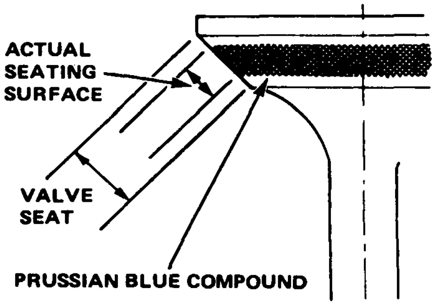
CUTTER	INTAKE	EXHAUST
32°	07780–0012900	07780–0012300
60°	07780–0014000	07780–0014100
45°	07780–0010800	07780–0010400
HOLDER	07781–0010201 and 07781–0010301	

2. Bevel the upper edge of seat with the 32° cutter until required seat width is obtained.
3. Bevel the inner edge of seat slightly with the 60° cutter.
4. Carefully center 45° cutter.
   Remove as little material as possible. (See measurement after reconditioning shown below.)

   Valve Seat Width:
   Standard: 1.25–1.55 mm (0.049–0.061 in.)
   Service Limit: 2.0 mm (0.08 in.)



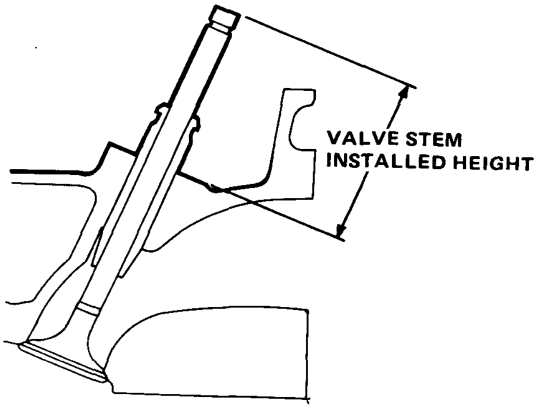
5. After resurfacing seat, inspect for even valve seating: Apply Prussian blue compound to valve face, and insert valve in original location in head, then lift it and snap it closed against seat several times.



6. The actual valve seating surface, as shown by the blue compound, should be centered on the seat.
   - If it is too high (closer to the valve stem), you must make a second cut with the 60° cutter to move it down, then one more cut with the 45° cutter to restore seat width.
   - If it is too low (closer to valve edge), you must make a second cut with the 32° cutter to move it up, then one more cut with the 45° cutter to restore seat width.

   NOTE: The final cut should always be made with the 45° cutter.
7. Insert intake and exhaust valves in head and measure valve stem installed height.

   Intake Valve Stem Installed Height:
   Standard (New): 48.16 mm (1.896 in.)
   Service Limit: 48.95 mm (1.925 in.)
   Exhaust Valve Stem Installed Height:
   Standard (New): 48.16 mm (1.896 in.)
   Service Limit: 48.95 mm (1.925 in.)

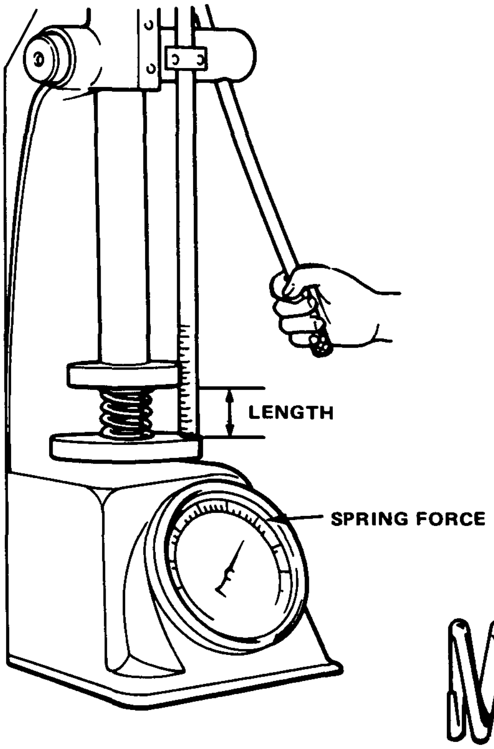


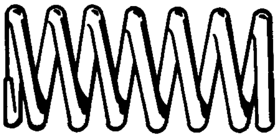
8. If valve stem installed height is over service limit, replace valve and recheck. If still over service limit, replace cylinder head; the valve seat in the head is too deep.

Spring Length and Force Check

1. Compress spring to specified length.
2. Note reading of spring force.

NOTE: Inspect springs for obvious distortion.





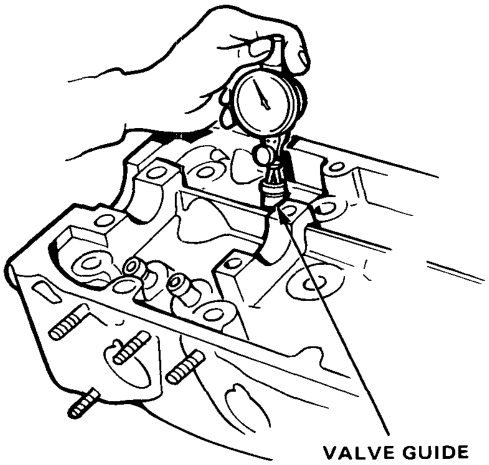
INTAKE and EXHAUST SPRING

Free Length:	**47.6 mm (1.89 in.)**
Installed Length:	**43.0 mm (1.69 in.)**
Spring Force:	**18.0–21.0 kg (39.7–47.3 lb)**
Compressed Length:	**34.0 mm (1.34 in.)**
Spring Force:	**67.6–75.6 kg (149.1–166.7 lb)**

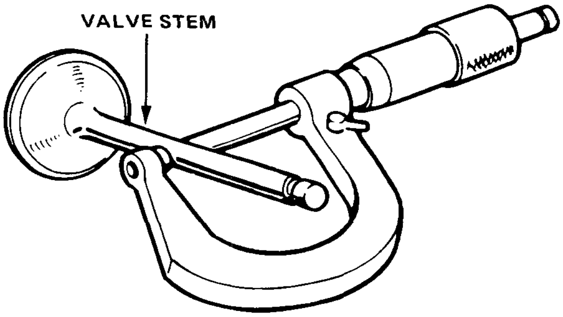
Cylinder Head/Valve Train

Valve Guide-to-Valve Stem Clearance

1. Measure the I.D. of the intake and exhaust valve guides with an inside micrometer or ball gauge.



2. Using a micrometer, measure the diameter of valve stem.



3. Now subtract each stem diameter from its guide I.D.
4. The difference between the largest measurement in the guide and the smallest measurement on the valve stem should not exceed the service limit.

Intake Valve Guide I.D.
Standard (New): 6.61–6.63 mm (0.260–0.261 in.)
Service Limit: 6.65 mm (0.262 in.)

Exhaust Valve Guide I.D.
Standard (New): 6.61–6.63 mm (0.260–0.261 in.)
Service Limit: 6.65 mm (0.262 in.)

Intake Valve Stem-to-Guide Clearance
Standard (New): 0.02–0.05 mm (0.001–0.002 in.)
Service Limit: 0.08 mm (0.003 in.)

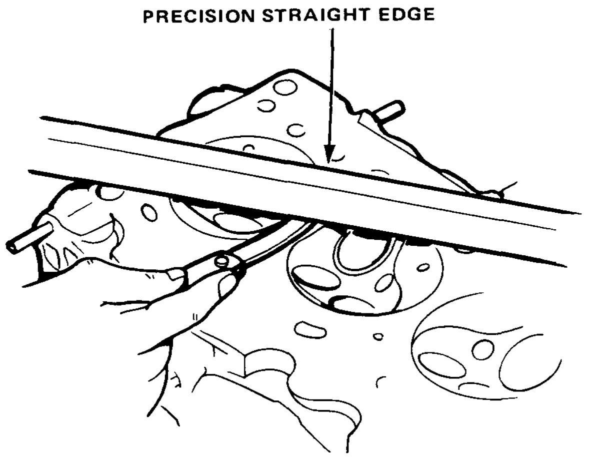
Exhaust Valve Stem-to-Guide Clearance
Standard (New): 0.05–0.08mm (0.002–0.003 in.)
Service Limit: 0.11 mm (0.004 in.)

Cylinder Head Warpage

NOTE: If camshaft bearing clearances are not within specification, the head cannot be resurfaced (page 6-8).

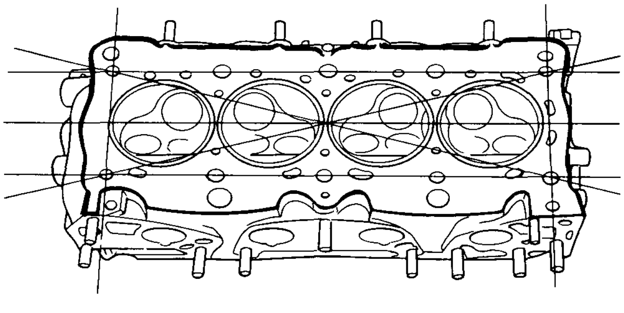
If camshaft bearing radial clearances are within specifications, check head for warpage.

- If warpage is less than 0.05 mm (0.002 in.) cylinder head resurfacing is not required.
- If warpage is between 0.05 mm (0.002 in.) and 0.2 mm (0.008 in.), resurface cylinder head.
- Maximum resurface limit is 0.2 mm (0.008 in.) based on height of 90.0 mm (3.54 in.)



Cylinder Head Height:
New: 90.0 mm (3.54 in.)
Service Limit: 89.8 mm (3.53 in.)

Measure along edges, and 3 ways across center.



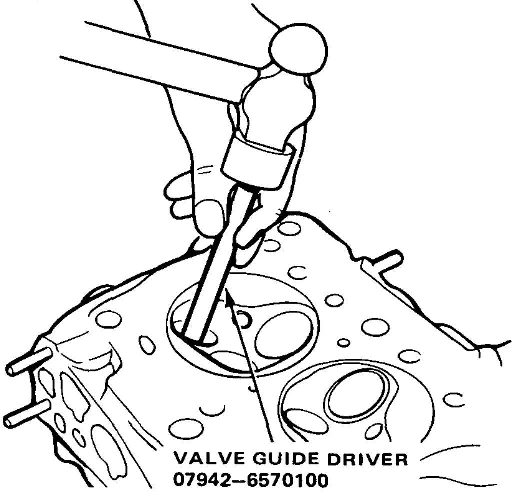
Valve Guide Replacement

NOTE:

- For best results, heat cylinder head to 150°C (300°F) before removing or installing guides.
- It may be necessary to use an air hammer to remove some valve guides.

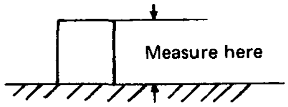
CAUTION: To avoid burns, use heavy gloves when handling heated cylinder head.

1. Drive the valve guide out from the bottom of the cylinder head.

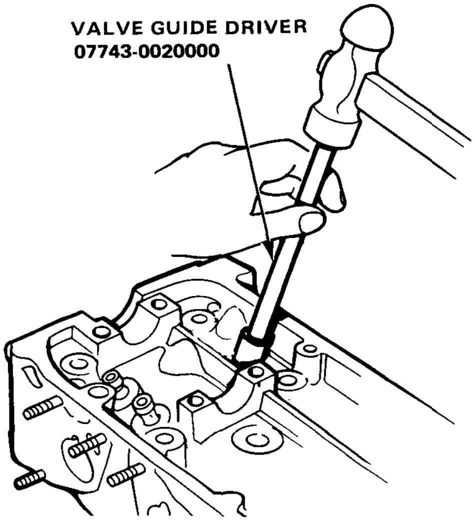

VALVE GUIDE DRIVER
07942–6570100

2. Drive in a new valve guide to the specified depth.

Intake: 17.5 mm (0.69 in.)
Exhaust: 16.0 mm (0.63 in.)


Measure here

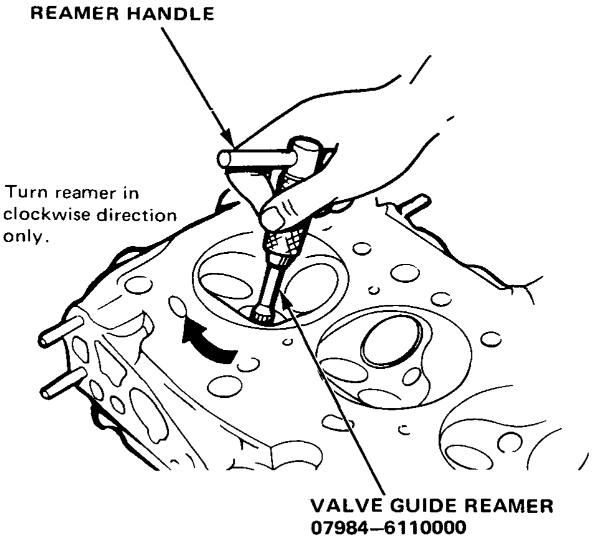
NOTE: If using adjustable valve guide driver 07743–0020000, adjust the collar depth to correspond with the measurements given above.


VALVE GUIDE DRIVER
07743-0020000

Valve Guide Reaming

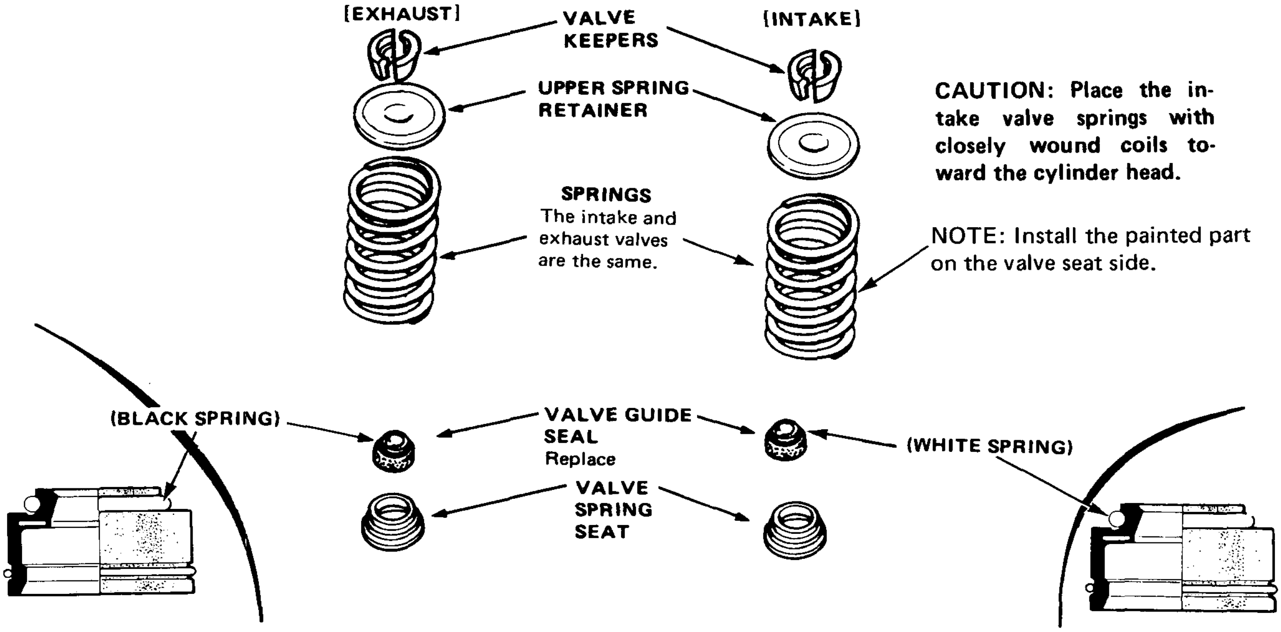
NOTE: *For new valve guides only.*

1. Coat reamer and valve guide with cutting oil.
2. Rotate reamer clockwise the full length of the valve guide bore.
3. Continue to rotate reamer clockwise while removing.
4. Thoroughly wash the guide in detergent and water to remove any cutting residue.
5. Check clearance with valve (page 6-14).


REAMER HANDLE
Turn reamer in clockwise direction only.
VALVE GUIDE REAMER
07984–6110000

Valve Spring Installation Sequence

NOTE: Exhaust and intake valve guide seals are NOT interchangeable.


[EXHAUST]
VALVE KEEPERS
[INTAKE]
UPPER SPRING RETAINER
SPRINGS
The intake and exhaust valves are the same.
(BLACK SPRING)
VALVE GUIDE SEAL
Replace
(WHITE SPRING)
VALVE SPRING SEAT

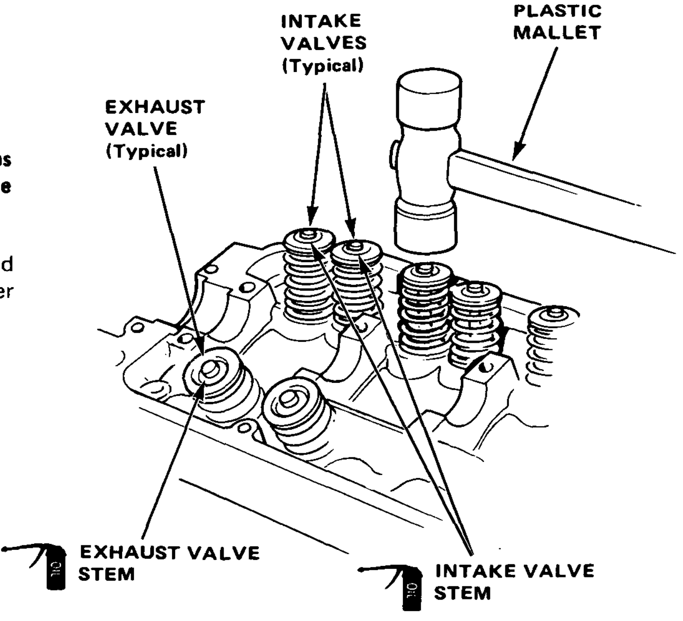
CAUTION: Place the intake valve springs with closely wound coils toward the cylinder head.

NOTE: Install the painted part on the valve seat side.

Intake and Exhaust Valve Installation

When installing valves in cylinder head, coat valve stems with oil before inserting into valve guides, and make sure valves move up and down smoothly.

When valves and springs are in place, lightly tap the end of each valve stem two or three times to ensure proper seating of valve and valve keepers (use plastic mallet).


INTAKE VALVES (Typical)
PLASTIC MALLET
EXHAUST VALVE (Typical)
OIL
EXHAUST VALVE STEM
OIL
INTAKE VALVE STEM

Cam/Rocker Arm and Camshaft Seal/Pulley Installation

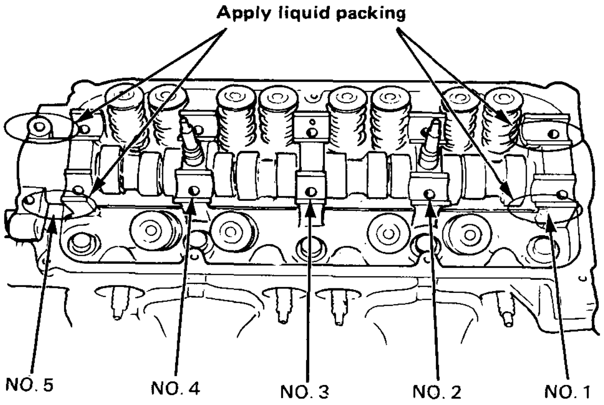
CAUTION:

- **Make sure that all rockers are in alignment with valves when torquing rocker assembly bolts.**
- **Valve locknuts should be loosened and adjusting screws backed off before installation.**

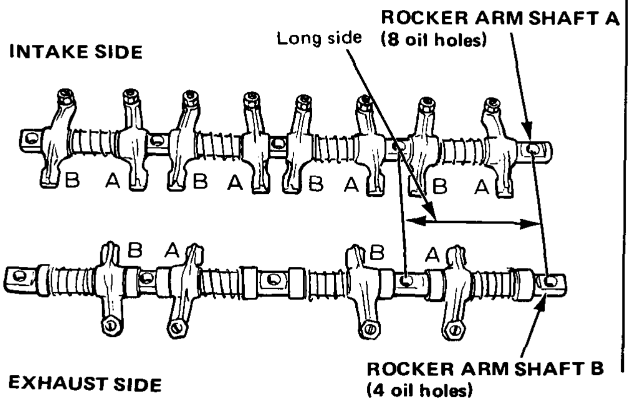
1. After wiping down cam and journals in cylinder head, lubricate both surfaces and install camshaft.
2. Turn camshaft until its keyway is facing up. (No. 1 cylinder TDC).
3. Install the camshaft seal with the open side (spring) facing in.

Lubricate cam lobes after reassembly.

4. Apply liquid gasket to the head mating surfaces of the Nos. 1 and 5 camshaft holders, and place them on top of the cylinder along with the Nos. 2, 3 and 4.

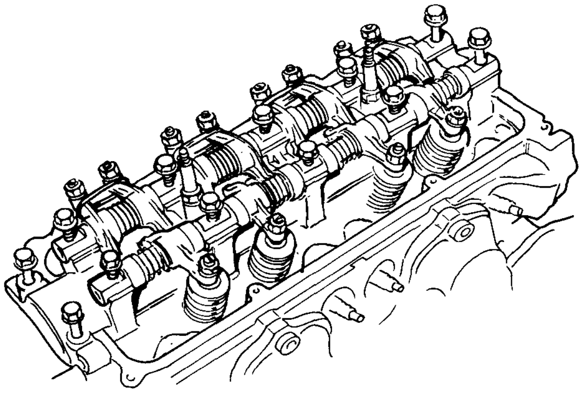

Apply liquid packing
NO. 5
NO. 4
NO. 3
NO. 2
NO. 1

5. Temporarily assemble the rocker arms.
   To ease assembly, use rubber bands to hold the rocker arms in position.

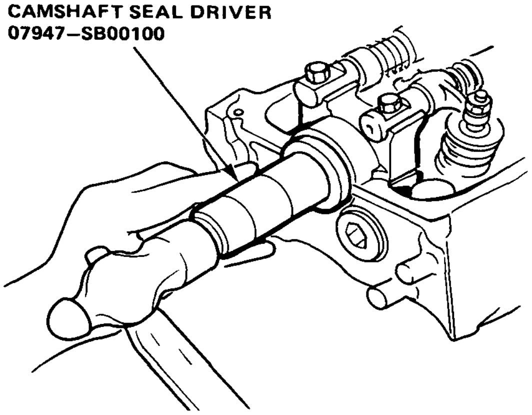

ROCKER ARM SHAFT A
(8 oil holes)
Long side
INTAKE SIDE
B A B A B A B A
B A B A
EXHAUST SIDE
ROCKER ARM SHAFT B
(4 oil holes)

6. Set rocker arm assembly in place, loosely install the bolts, then remove the rubber bands.

   NOTE: Do not allow the collars to ride over the camshaft holders.



7. Press in the cam shaft oil seal securely with the special tool.

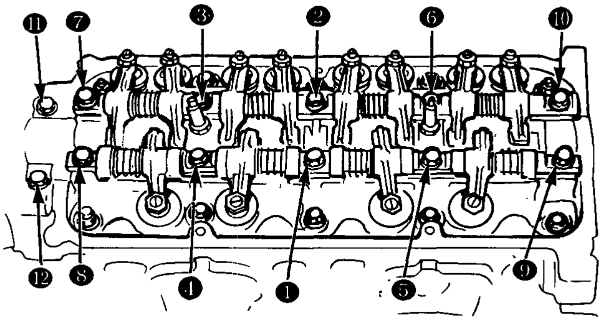

CAMSHAFT SEAL DRIVER
07947–SB00100

(cont'd)

Cylinder Head/Valve Train

Cam/Rocker Arm and Camshaft Seal/Pulley Installation (cont'd)

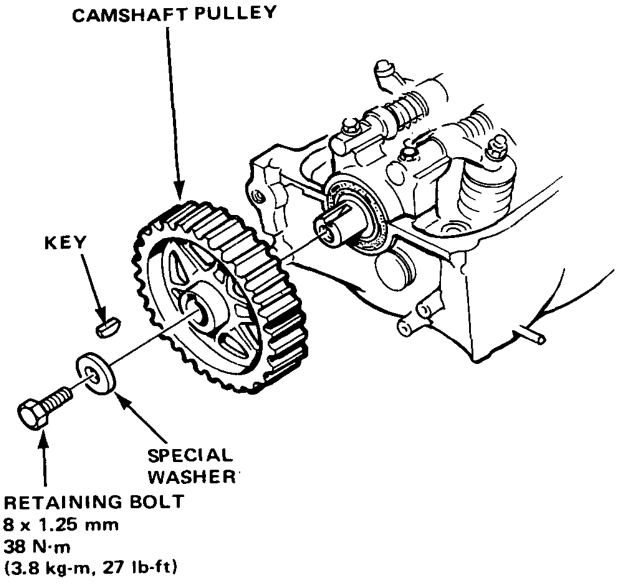
8. Tigthen each bolt two turns at a time in the sequence shown below to insure that the rockers do not bind on the valves.


⑪
⑦
③
②
⑥
⑩
⑫
⑧
④
①
⑤
⑨

8 x 1.25 mm
22 N·m (2.2 kg-m, 16 lb-ft)

9. Install key into groove in camshaft.

10. Push camshaft pulley onto camshaft, then tighten retaining bolt to torque shown.


CAMSHAFT PULLEY
KEY
SPECIAL WASHER
RETAINING BOLT
8 x 1.25 mm
38 N·m
(3.8 kg-m, 27 lb-ft)

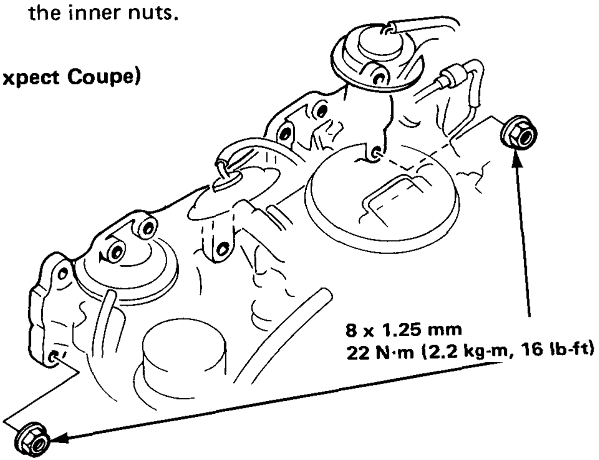
Cylinder Head Installation

1. Install the cylinder head in reverse order of removal:

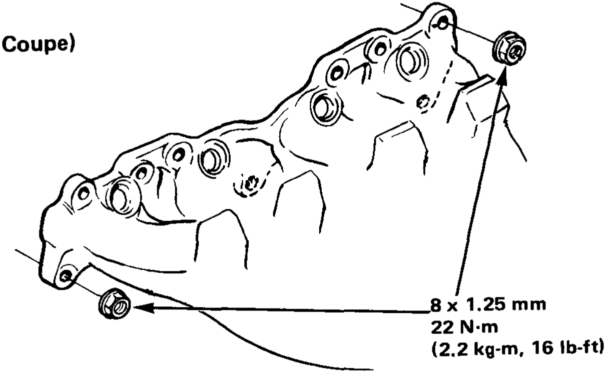
- Always use a new head gasket.
- Cylinder head and engine block surface must be clean.
- "UP" mark on timing belt pulley should be at the top.

2. Install the intake manifold and tighten the nuts in a criss-cross pattern in 2 or 3 steps, beginning with the inner nuts.

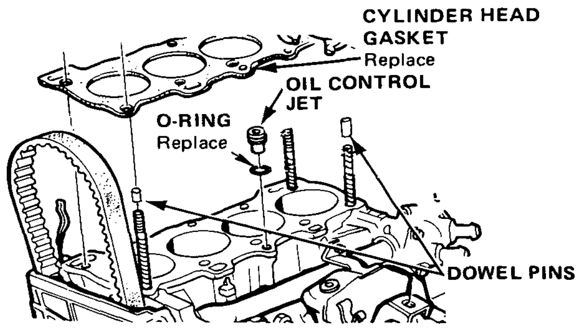
(Expect Coupe)


8 x 1.25 mm
22 N·m (2.2 kg-m, 16 lb-ft)

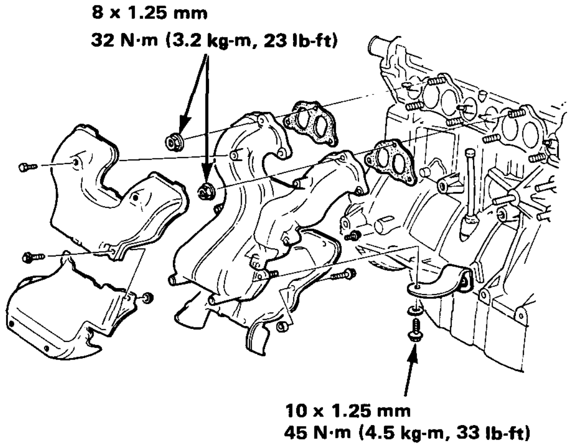
(Coupe)

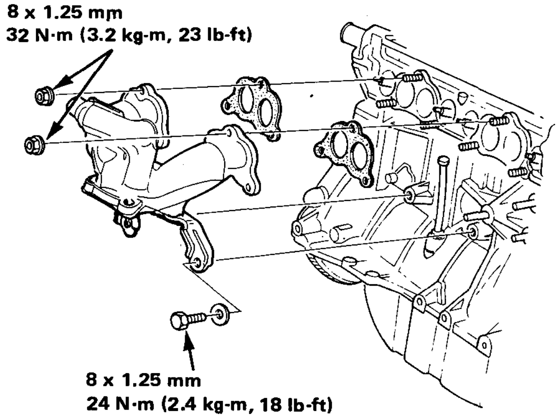

8 x 1.25 mm
22 N·m
(2.2 kg-m, 16 lb-ft)

NOTE: Cylinder head dowel pins and oil control jet must be aligned.


CYLINDER HEAD GASKET
Replace
OIL CONTROL JET
O-RING
Replace
DOWEL PINS

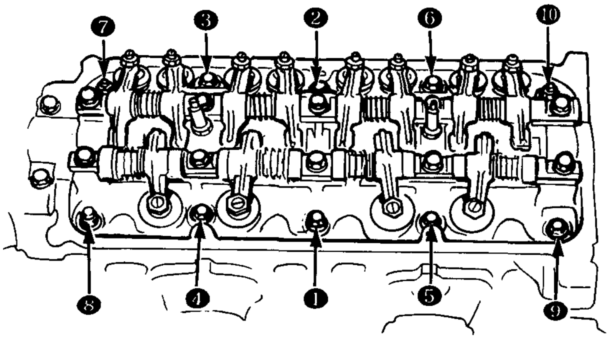
3. Install the exhaust manifold and bracket.


8 x 1.25 mm
32 N·m (3.2 kg-m, 23 lb-ft)
10 x 1.25 mm
45 N·m (4.5 kg-m, 33 lb-ft)


8 x 1.25 mm
32 N·m (3.2 kg-m, 23 lb-ft)
8 x 1.25 mm
24 N·m (2.4 kg-m, 18 lb-ft)

4. Adjust the valve timing (page 6-21).
5. Tighten cylinder head bolts and nuts in two steps. In the first step tighten all bolts and nuts, in sequence, to about 30 N.m (3.0 kg-m, 22 lb-ft); in the final step tighten, in same sequence, to 60 N.m (60 kg-m, 43 lb-ft).

CYLINDER HEAD TORQUE SEQUENCE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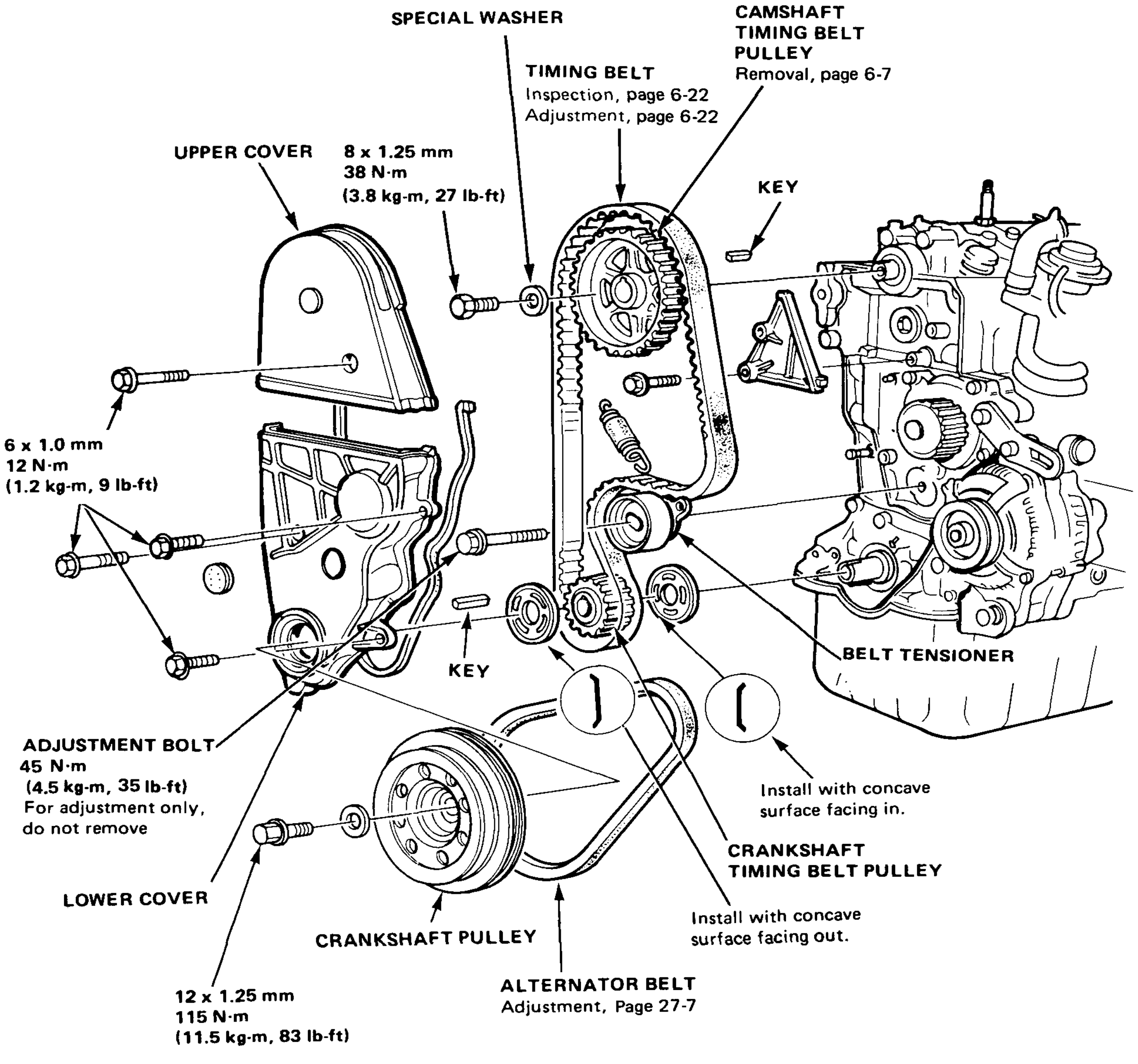
6. After installation, check that all tubes hoses and connectors are installed correctly.

Cylinder Head/Valve Train

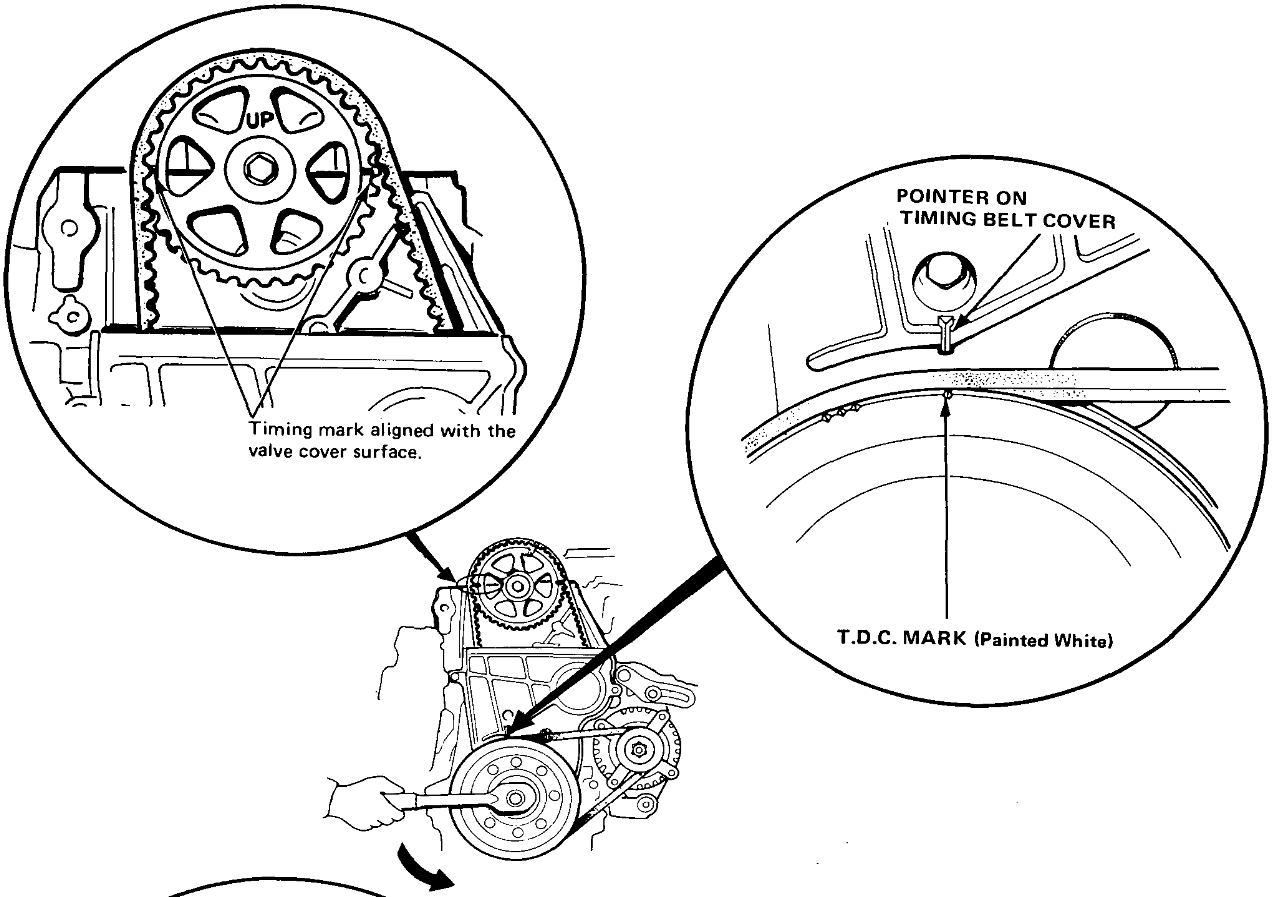
Timing Belt Replacement

NOTE:
- Refer to next page for positioning crank and pulley before installing belt.
- Mark direction of rotation before removing.

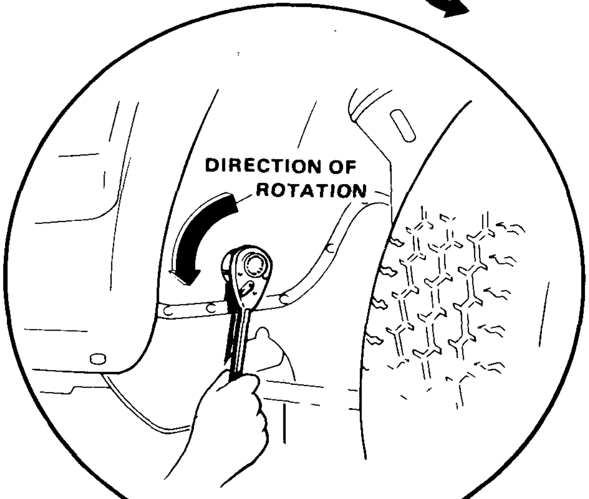

SPECIAL WASHER
CAMSHAFT TIMING BELT PULLEY
Removal, page 6-7
TIMING BELT
Inspection, page 6-22
Adjustment, page 6-22
UPPER COVER
8 x 1.25 mm
38 N·m
(3.8 kg-m, 27 lb-ft)
KEY
6 x 1.0 mm
12 N·m
(1.2 kg-m, 9 lb-ft)
KEY
BELT TENSIONER
ADJUSTMENT BOLT
45 N·m
(4.5 kg-m, 35 lb-ft)
For adjustment only, do not remove
Install with concave surface facing in.
CRANKSHAFT TIMING BELT PULLEY
LOWER COVER
Install with concave surface facing out.
CRANKSHAFT PULLEY
ALTERNATOR BELT
Adjustment, Page 27-7
12 x 1.25 mm
115 N·m
(11.5 kg-m, 83 lb-ft)

Positioning Crankshaft Before Installing Timing Belt

NOTE: Install the timing belt with the No. 1 piston at TDC (Top Dead Center) of the compression stroke.


UP
POINTER ON TIMING BELT COVER
T.D.C. MARK (Painted White)

Timing mark aligned with the valve cover surface.

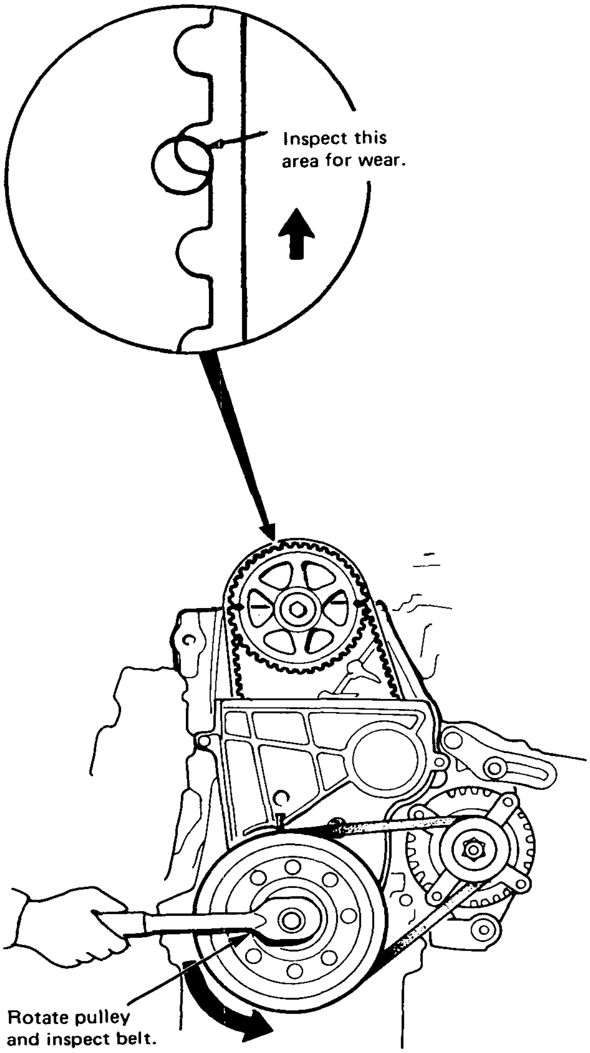

DIRECTION OF ROTATION

With engine installed, turn crank with socket wrench and extension as shown.

Timing Belt Inspection

NOTES:

- Replace belt if oil soaked.
- Remove any oil or solvent that gets on the belt.

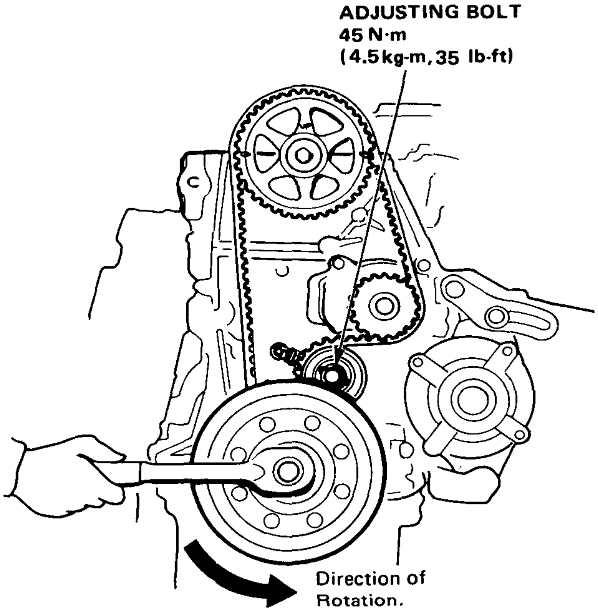

Inspect this area for wear.
Rotate pulley and inspect belt.

Timing Belt Tension Adjustment

COUTION: Timing Belt should be tension adjusted cold.

NOTE: Tensioner is spring-loaded to apply proper tension to the belt automatically after making the following adjustment:

1. Set the No. 1 piston at TDC.
2. Loosen adjusting bolt.


ADJUSTING BOLT
45 N·m
(4.5kg-m, 35 lb-ft)
Direction of Rotation.

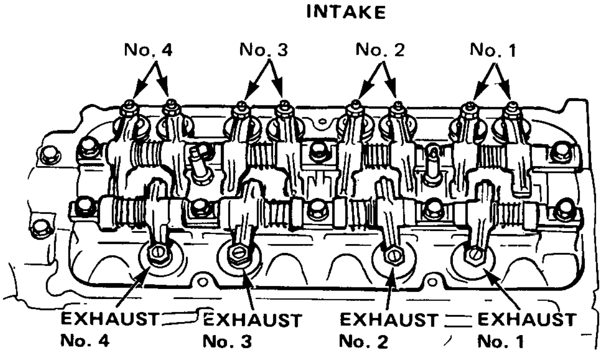
3. Rotate crankshaft counterclockwise 3-teeth on camshaft pulley to create tension on timing belt.
4. Tighten adjusting bolt.
5. If pulley bolt broke loose while turning crank, re-torque it to 115 N·m (11.5 kg-m, 83 lb-ft).

   NOTE: Put transmission in gear and set parking brake before retorquing pulley bolt.

Valve Adjustment

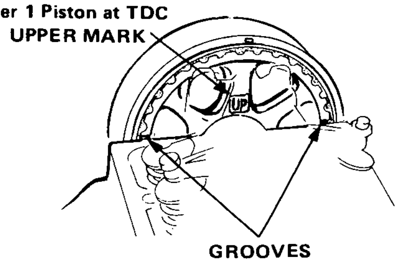
NOTE: Valves should be adjusted cold when the cylinder head temperature less than 38°C (100°F). Adjustment is the same for intake and exhaust valves.

1. Remove valve cover.



2. Set No. 1 piston at TDC. "UP" mark in puller should be at top, and TDC grooves on back side of puller should align with cylinder head surface. The distributor rotor must be pointing towards No. 1 plug wire.

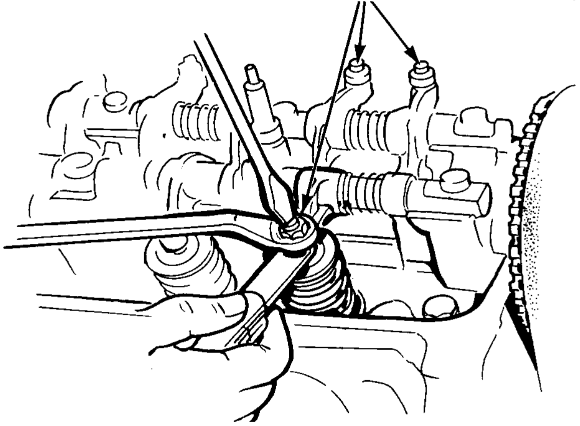
Number 1 Piston at TDC



3. Adjust valves on No. 1 cylinder.

   Intake: 0.17–0.22 mm (0.007–0.009 in.)
   Exhaust: 0.22–0.27 mm (0.009–0.011 in.)

4. Loosen locknut and turn adjustment screw until feeler gauge slides back and forth with slight amount of drag.

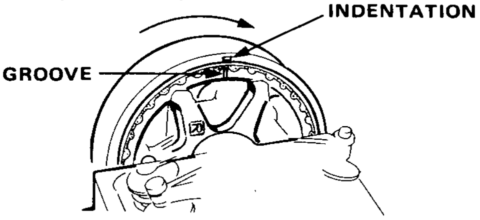


INTAKE and EXHAUST VALVES LOCKNUTS 7 x 0.75 mm
20 N·m (2.0 kg-m, 14 lb-ft)

5. Tighten locknut and check clearance again. Repeat adjustment if necessary.

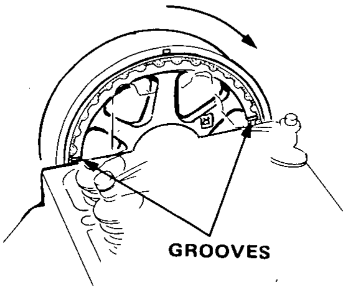
6. Rotate crankshaft 180° counterclockwise (cam pulley turns 90°). TDC groove should be aligned with the indentation in the belt cover. "UP" mark should not be visible. Distributor rotor should point to No. 3 plug wire. Adjust valves on No. 3 cylinder.

Number 3 piston at TDC



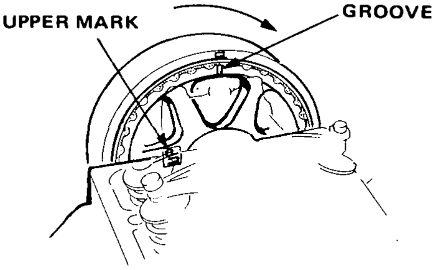
7. Rotate crankshaft 180° counterclockwise to bring No. 4 piston to TDC. Both TDC grooves are once again visible and distributor rotor points to No. 4 plug wire. Adjust valves on No. 4 cylinder.

Number 4 piston at TDC



8. Rotate crankshaft 180° counterclockwise to bring No. 2 piston to TDC. Mark on pulley should align with indentation on the belt cover. "UP" mark should be visible. Distributor rotor should point to No. 2 plug wire. Adjust valves on No. 2 cylinder.

Number 2 piston at TDC

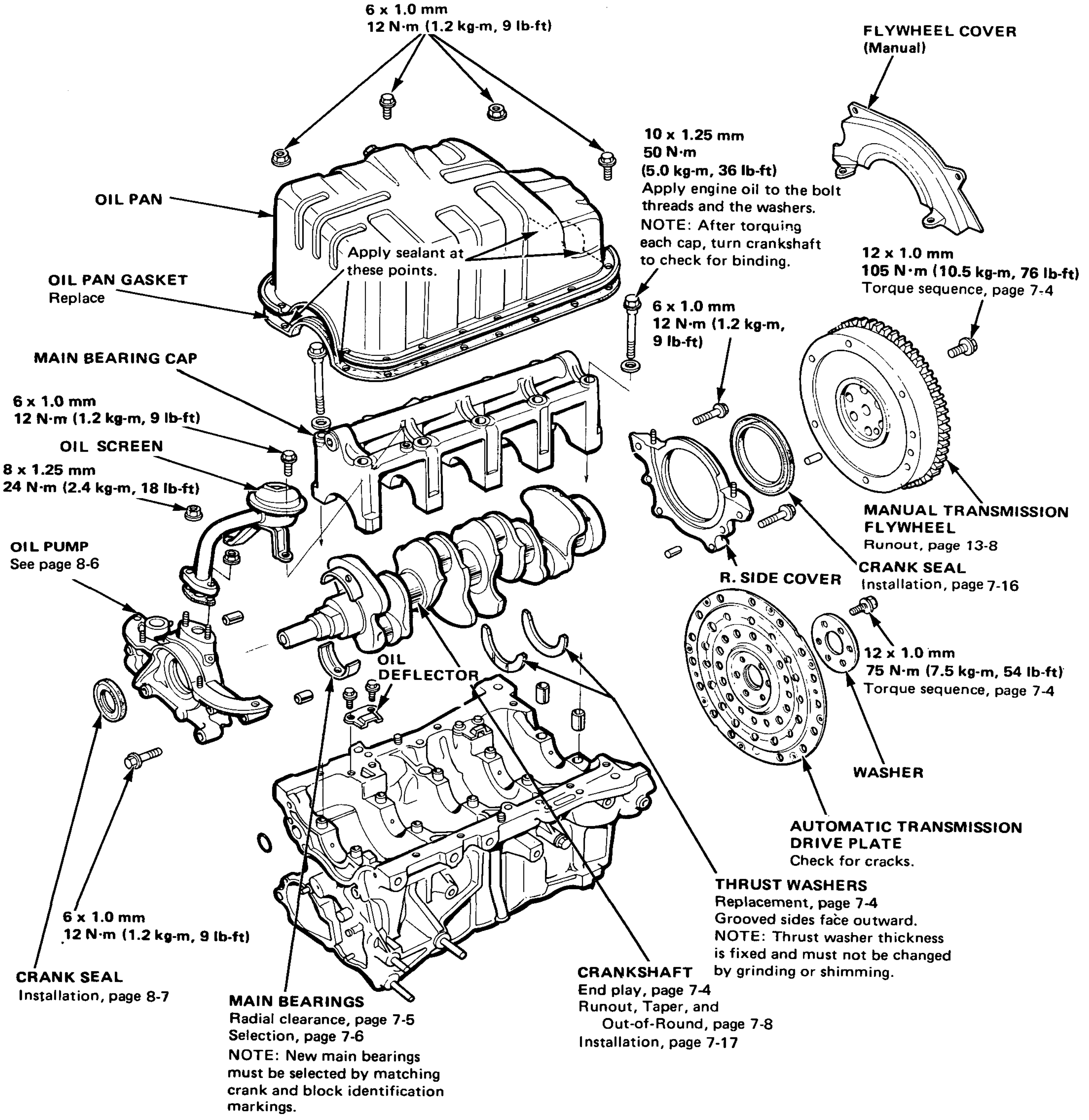


Engine Block

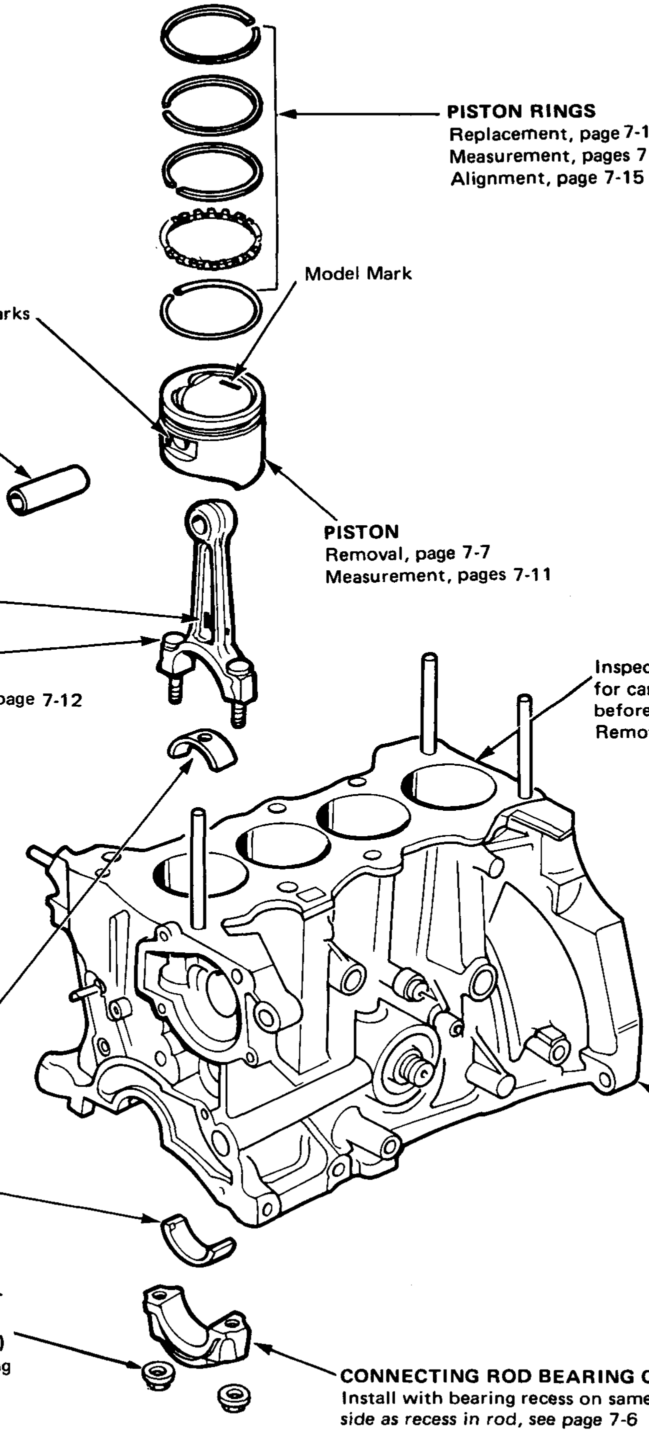
Illustrated Index

OIL Lubricate all internal parts with engine oil during reassembly.

NOTE: Apply non-hardening liquid gasket to the mating surfaces of the right side cover and oil pump case, before installing them.


6 x 1.0 mm
12 N·m (1.2 kg-m, 9 lb-ft)
FLYWHEEL COVER
(Manual)
10 x 1.25 mm
50 N·m
(5.0 kg-m, 36 lb-ft)
Apply engine oil to the bolt threads and the washers.
NOTE: After torquing each cap, turn crankshaft to check for binding.
OIL PAN
Apply sealant at these points.
12 x 1.0 mm
105 N·m (10.5 kg-m, 76 lb-ft)
Torque sequence, page 7-4
OIL PAN GASKET
Replace
6 x 1.0 mm
12 N·m (1.2 kg-m, 9 lb-ft)
MAIN BEARING CAP
6 x 1.0 mm
12 N·m (1.2 kg-m, 9 lb-ft)
OIL SCREEN
8 x 1.25 mm
24 N·m (2.4 kg-m, 18 lb-ft)
MANUAL TRANSMISSION FLYWHEEL
Runout, page 13-8
OIL PUMP
See page 8-6
R. SIDE COVER
CRANK SEAL
Installation, page 7-16
12 x 1.0 mm
75 N·m (7.5 kg-m, 54 lb-ft)
Torque sequence, page 7-4
OIL DEFLECTOR
WASHER
AUTOMATIC TRANSMISSION DRIVE PLATE
Check for cracks.
THRUST WASHERS
Replacement, page 7-4
Grooved sides face outward.
NOTE: Thrust washer thickness is fixed and must not be changed by grinding or shimming.
6 x 1.0 mm
12 N·m (1.2 kg-m, 9 lb-ft)
CRANK SEAL
Installation, page 8-7
CRANKSHAFT
End play, page 7-4
Runout, Taper, and Out-of-Round, page 7-8
Installation, page 7-17
MAIN BEARINGS
Radial clearance, page 7-5
Selection, page 7-6
NOTE: New main bearings must be selected by matching crank and block identification markings.

NOTE: New rod bearings must be selected by matching connecting rod and crankshaft identification markings (page 7-6).



PISTON RINGS
Replacement, page 7-14
Measurement, pages 7-14 and 15
Alignment, page 7-15

PISTON PIN
Removal, page 7-11
Inspection, page 7-12
Installation, page 7-13

PISTON
Removal, page 7-7
Measurement, pages 7-11

CONNECTING ROD
End play, page 7-4
Small end measurement, page 7-12
Selection, page 7-13

Inspect top of cylinder bore for carbon build up or ridge before removing piston.
Remove ridge if necessary, page 7-7

CONNECTING ROD BEARINGS
Selection, page 7-6
Clearance, page 7-5

ENGINE BLOCK
Warpage inspection, page 7-10
Honing, page 7-10
Cylinder bore inspection, page 7-9

CONNECTING ROD NUT
8 x 0.75 mm
28 N·m (2.8 kg-m, 20 lb-ft)
After torquing each bearing cap, rotate crankshaft to check for binding.

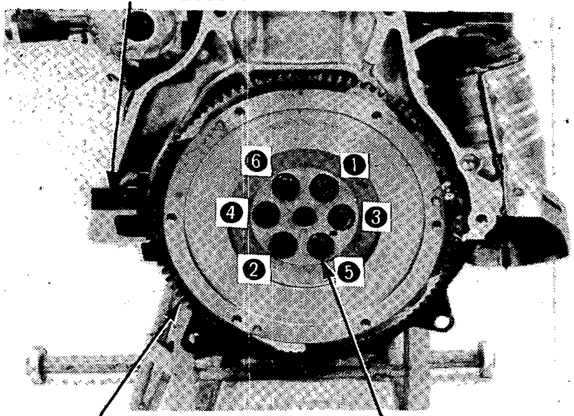
CONNECTING ROD BEARING CAP
Install with bearing recess on same side as recess in rod, see page 7-6

Engine Block

Flywheel Replacement (Manual Transmission)

Remove the six flywheel bolts, then separate the flywheel from the crankshaft flange. After installation, tighten the bolts in the sequence shown.

RING GEAR HOLDER
07924– PE60000

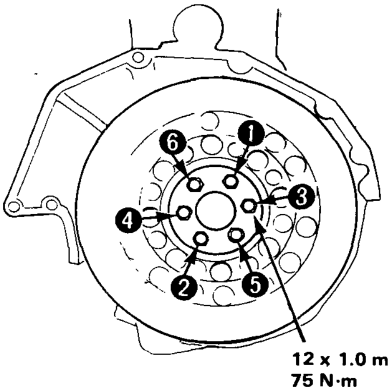


RING GEAR
Inspect ring gear teeth for wear or damage.

12 x 1.0 mm
105 N·m
(10.5 kg-m, 76 lb-ft)

Drive Plate Replacement (Hondamatic Transmission)

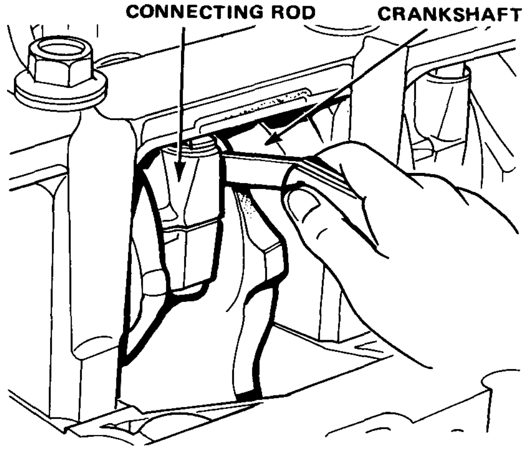
Remove the six drive plate bolts, then separate the drive plate from the crankshaft flange. After installation, tighten the bolts in the sequence shown.



12 x 1.0 mm
75 N·m
(7.5 kg-m, 54 lb-ft)

Connecting Rod End Play

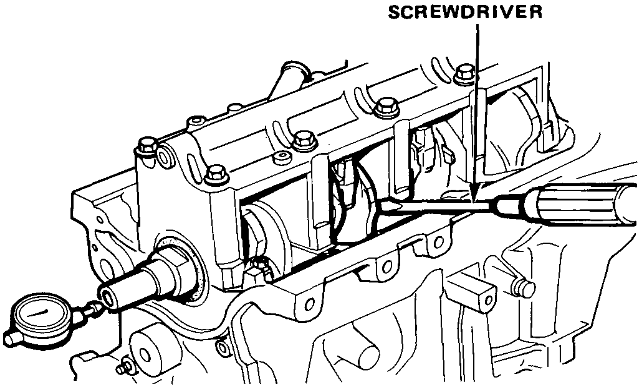
Standard (New): 0.15–0.30 mm (0.006–0.012 in.)
Service Limit: 0.40 mm (0.016 in.)



- If out-of-tolerance, install new connecting rod.
- If still out-of-tolerance, replace crankshaft (pages 7-7 and 7-17).

Crankshaft End Play

Push crank firmly away from dial indicator, and zero dial against end of crank. Then pull crank firmly back toward indicator; dial reading should not exceed service limit.



Standard (New): 0.1–0.35 mm (0.004–0.014 in.)
Service Limit: 0.45 mm (0.018 in.)

- If end play is excessive, inspect thrust washers and thrust surface on crankshaft. Replace parts as necessary.

NOTE: Thrust washer thickness is fixed and must not be changed either by grinding or shimming. Thrust washers are installed with grooved sides outward.

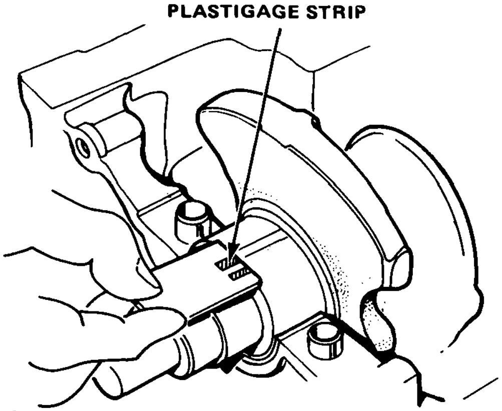
Main Bearing Clearance

1. To check main bearing clearance, remove the main cap and bearing halves.
2. Clean each main journal and bearing half with a clean shop rag.
3. Place one strip of plastigage across each main journal.

   NOTE: If the engine is still in the car when you bolt the main cap down to check clearance, the weight of the crank and flywheel will flatten the plastigage further than just the torque on the cap bolts, and give you an incorrect reading. For an accurate reading, support the crank with a jack under the counterweights and check only one bearing at a time.
4. Reinstall the bearings and cap, then torque the bolts to 50 N·m (5.0 kg-m, 36 lb-ft).

   NOTE: Do not rotate the crank during inspection.
5. Remove the cap and bearings again, and measure the widest part of the plastigage.

Main Bearing Clearance:
Standard (New): 0.024–0.042 mm
(0.0009–0.0016 in.)
Service Limit: 0.07 mm (0.003 in.)



6. If the plastigage measures too wide or too narrow, (remove the engine if it's still in the car), remove the crank, remove the upper half of the bearing, then install a new, complete bearing with the same color code (select the color as shown on the next page), and recheck the clearance.

   CAUTION: Do not file, shim, or scrape the bearings or the caps to adjust clearance.
7. If the plastigage shows the clearance is still incorrect, try the next larger or smaller bearing (the color listed above or below that one), and check again.

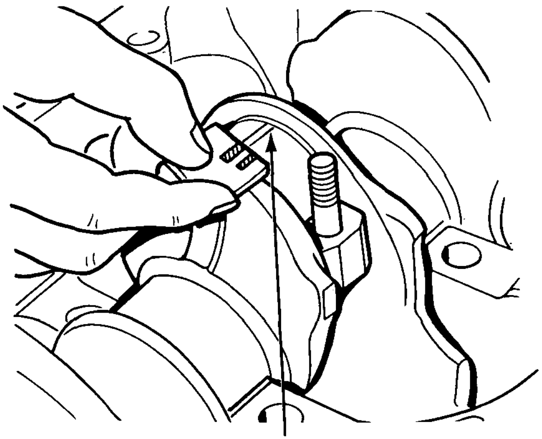
   NOTE: If the proper clearance cannot be obtained by using the appropriate larger or smaller bearings, replace the crank and start over.

Rod Bearing Clearance

1. Remove the connecting rod cap and bearing half.
2. Clean the crankshaft rod journal and bearing half with a clean shop rag.
3. Place plastigage across the rod journal.
4. Reinstall the bearing half and cap, and torque the nuts to 28 N·m (2.8 kg-m, 20 lb-ft).

   NOTE: Do not rotate the crank during inspection.
5. Remove the rod cap and bearing half and measure the widest part of the plastigage.

Connecting Rod Bearing Clearance:
Standard (New): 0.020–0.038 mm
(0.0008–0.0015 in.)
Service Limit: 0.07 mm (0.003 in.)



6. If the plastigage measures too wide or too narrow, remove the upper half of the bearing, install a new, complete bearing with the same color code (select color as shown on next page), and recheck the clearance.

   CAUTION: Do not file, shim, or scrape the bearing or the caps to adjust clearance.
7. If the plastigage shows the clearance is still incorrect, try the next larger or smaller bearing (the color listed above or below that one), and check clearance again.

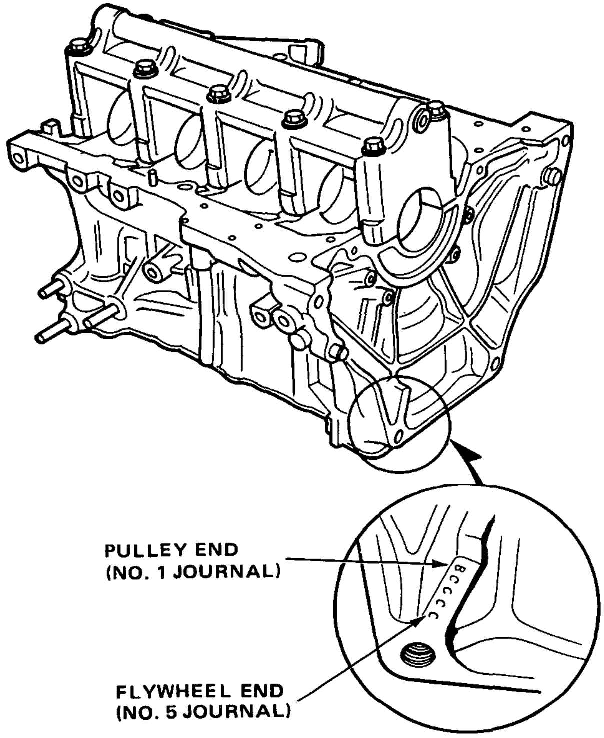
   NOTE: If the proper clearance cannot be obtained by using the appropriate larger or smaller bearings, replace the crank and start over.

Engine Block

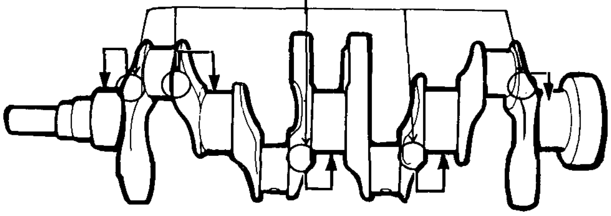
Main Bearing Selection

Crank Bore Code Location (Marks)

Marks have been stamped on the end of the block as a code for the size of each of the 5 main journal bores. Use them, and the numbers stamped on the crank (codes for main journal size), to choose the correct bearings.



Main Journal Code Locations (Numbers)



Bearing Identification

Color code is on the edge of the bearing

→ Larger crank bore

→ Smaller bearing (thicker)

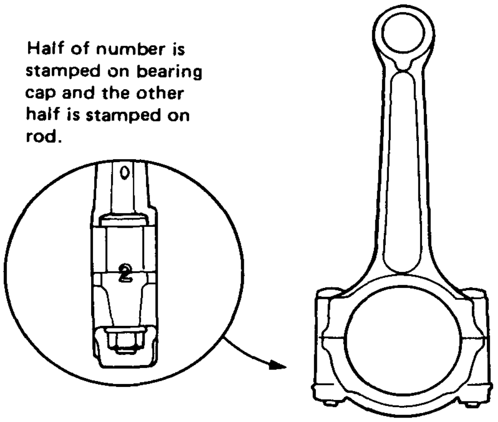
	A	B	C	D
1	Red	Pink	Yellow	Green
2	Pink	Yellow	Green	Brown
3	Yellow	Green	Brown	Black
4	Green	Brown	Black	Blue

↓ Smaller main journal ↓ Smaller bearing (thicker)

Rod Bearing Selection

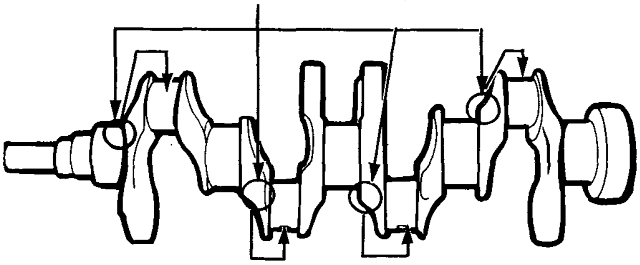
Rod Code Location (Numbers)

Numbers have been stamped on the side of each connecting rod as a code for the size of the big end. Use them, and the letters stamped on the crank (codes for rod journal size), to choose the correct bearings.



Half of number is stamped on bearing cap and the other half is stamped on rod.

Rod Journal Code Locations (Letters)



Bearing Identification

Color code is on the edge of the bearing

→ Larger rod big end

→ Smaller bearing (thicker)

	1	2	3	4
A	Red	Pink	Yellow	Green
B	Pink	Yellow	Green	Brown
C	Yellow	Green	Brown	Black
D	Green	Brown	Black	Blue

↓ Smaller rod journal ↓ Smaller bearing (thicker)

Engine Block

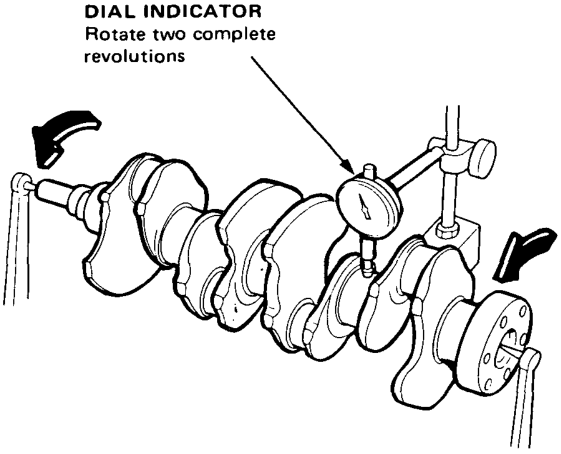
Crankshaft Inspection

- Clean the crankshaft oil passages with pipe cleaners or a suitable brush.
- Check the keyway and threads.

Alignment

- Measure runout on all main journals to make sure the crank is not bent.
- The Difference between measurements on each journal must not be more than the service limit.

Crankshaft Total Indicated Runout:
Standard (New): 0.03 mm (0.0012 in.)
Service Limit: 0.06 mm (0.0024 in.)

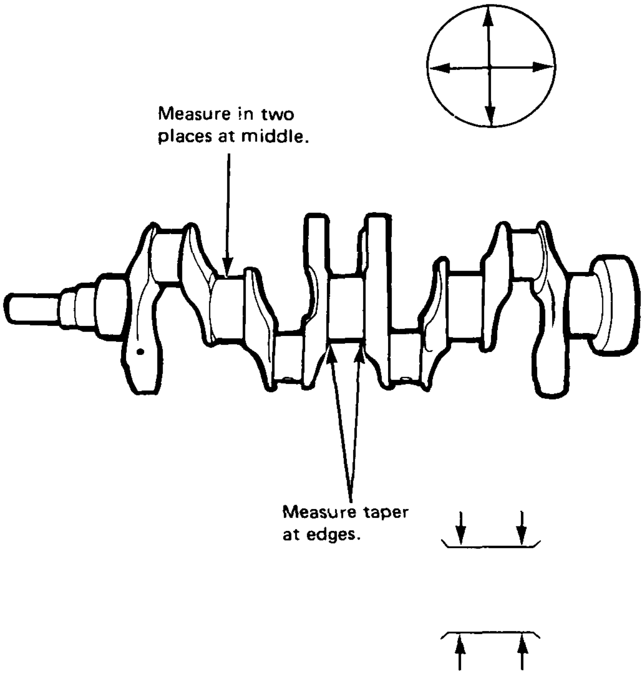

DIAL INDICATOR
Rotate two complete revolutions

Support with lathe-type tool or V-blocks

Out-of-Round and Taper

- Measure out-of-round at the middle of each rod and main journal in two places.
- The Difference between measurements on each journal must not be more than the service limit.

Journal Taper:
Standard (New): 0.005 mm (0.0002 in.)
Service Limit: 0.010 mm (0.0004 in.)

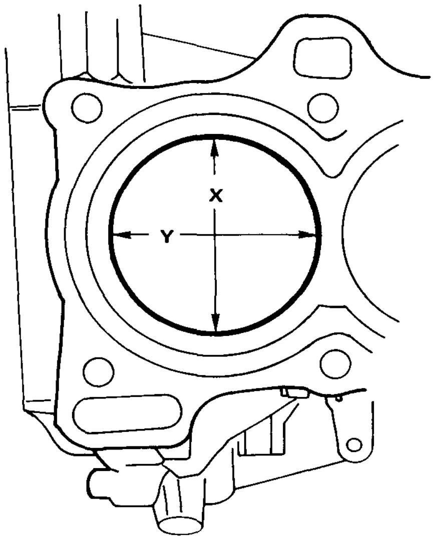

Measure in two places at middle.
Measure taper at edges.

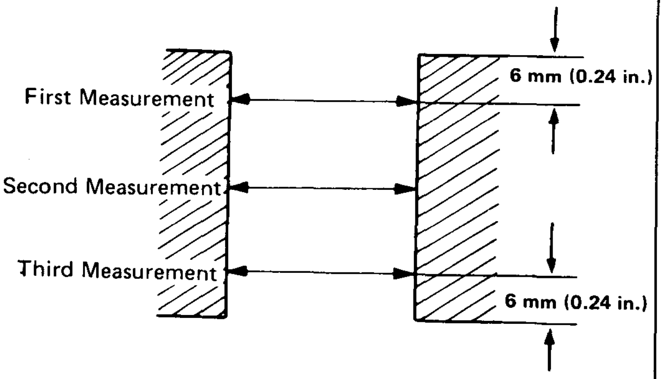
- Measure taper at edges of each rod and main journal.
- The Difference between measurement on each journal must not be more than the service limit.

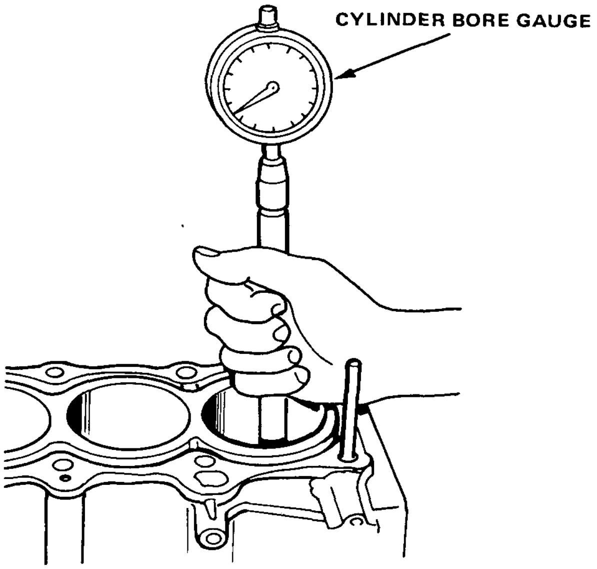
Journal Out-of-Round:
Standard (New): 0.005 mm (0.0002 in.)
Service Limit: 0.010 mm (0.0004 in.)

Block Inspection

1. Measure wear and taper in directions X and Y at three levels in each cylinder as shown.




6 mm (0.24 in.)
First Measurement
Second Measurement
Third Measurement
6 mm (0.24 in.)


CYLINDER BORE GAUGE

Cylinder Bore Size

Standard (New): 74.00–74.02 mm (2.9133–2.9142 in.)
Service Limit: 74.10 mm (2.9173 in.)

Oversize

Standard 0.25 (New): 74.215–74.248 mm (2.9218–2.9231 in.)
Standard 0.5 (New): 74.465–74.498 mm (2.9317–2.9330 in.)

Bore Taper
Limit: (Difference between first and third measurement) 0.05 mm (0.002 in.)

- If measurements in any cylinder are beyond Oversize Bore Service Limit, replace the block.
- If block is to be rebored, refer to Piston Clearance Inspection (page 7-11) after reboring.

NOTE: Scored or scratched cylinder bores must be honed (see next page).

Out-of-Round
Service Limit: 0.05 mm (0.002 in.)

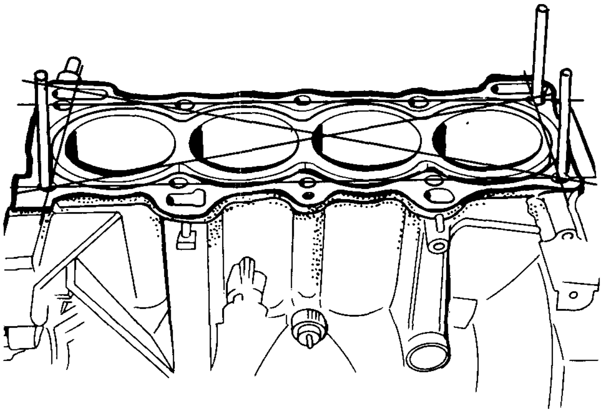
(cont'd)

Engine Block

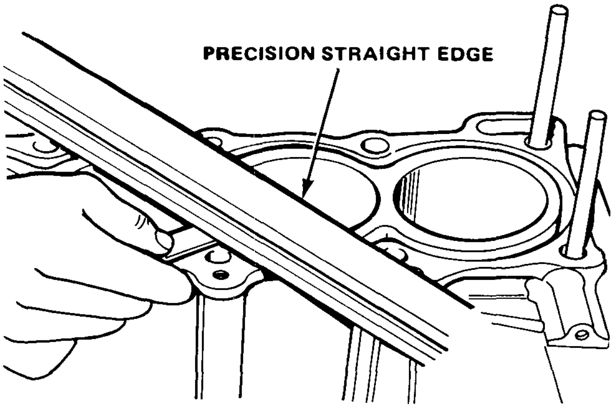
Block Inspection (cont'd)

2. Check the top of the block for warpage.
   Measure along the edges and across the center as shown.

SURFACES TO BE MEASURED



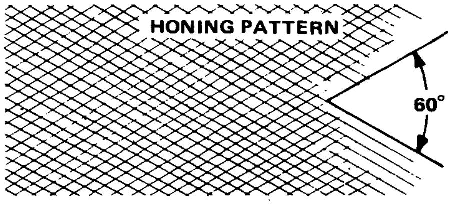
Engine Block Warpage:
Standard (New): 0.07 mm (0.003 in.)
Service Limit: 0.10 mm (0.004 in.)



Cylinder Bore Honing

1. Measure cylinder bores as shown on page 7-9. If the block is to be re-used, hone the cylinders, and remeasure the bores.

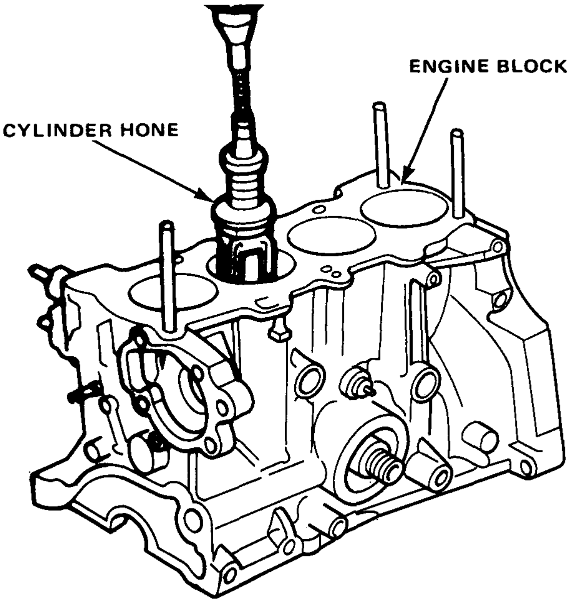
2. Hone cylinder bores with honing oil and a fine (400 grit) stone in a 60 degree cross-hatch pattern.



3. When honing is complete, thoroughly clean the engine block of all metal particles. Wash the cylinder bores with hot soapy water, then dry and oil immediately to prevent rusting.

4. If Scoring or scratches are still present in cylinder bores after honing to service limit, rebore the engine block.

   NOTE: Some light vertical scoring and scratching is acceptable if it is not deep enough to catch your fingernail and does not run the full length of the bore.



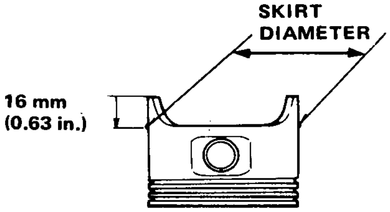
Piston Clearance Inspection

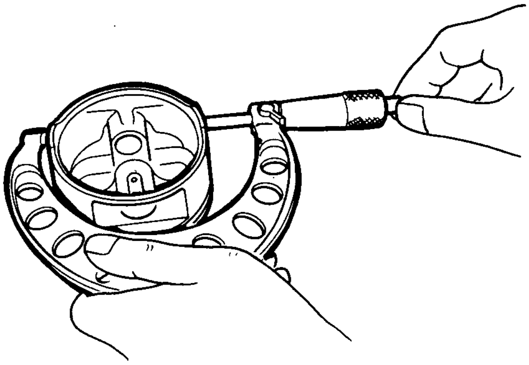
NOTE: If cylinder is bored, an oversized piston must be used.

1. Measure piston diameter at a point 16 mm (0.63 in.) from bottom of skirt.

Piston Diameter

Standard (New):	**73.97–73.99 mm (2.9122–2.9133 in.)**
Service Limit:	**73.96 mm (2.9118 in.)**


SKIRT DIAMETER
16 mm (0.63 in.)



Oversize Piston Diameter

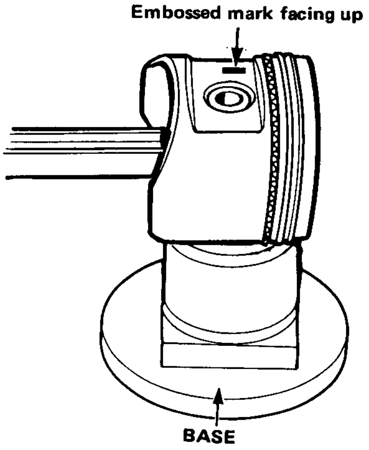
Standard 0.25:	**74.215–74.248 mm (2.9218–2.9231 in.)**
Standard 0.5:	**74.465–74.498 mm (2.9317–2.9330 in.)**

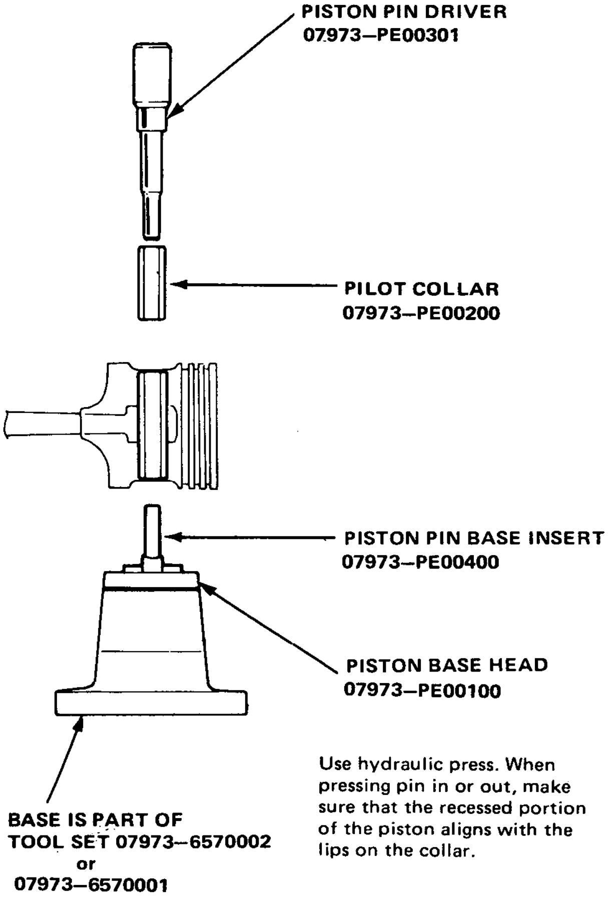
2. Calculate difference between cylinder bore diameter on page 7-9 and piston diameter.

Piston-to-Cylinder Clearance:

Standard (New):	**0.01–0.05 mm (0.0004–0.0020 in.)**
Service Limit:	**0.07 mm (0.003 in.)**

Piston Pin Removal


Embossed mark facing up
BASE


PISTON PIN DRIVER
07973–PE00301
PILOT COLLAR
07973–PE00200
PISTON PIN BASE INSERT
07973–PE00400
PISTON BASE HEAD
07973–PE00100
BASE IS PART OF
TOOL SET 07973–6570002
or
07973–6570001

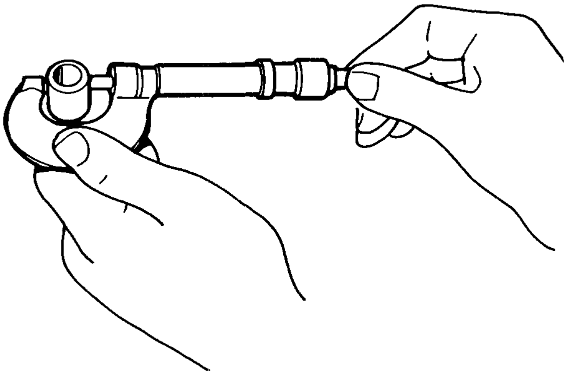
Use hydraulic press. When pressing pin in or out, make sure that the recessed portion of the piston aligns with the lips on the collar.

Piston Pin Inspection

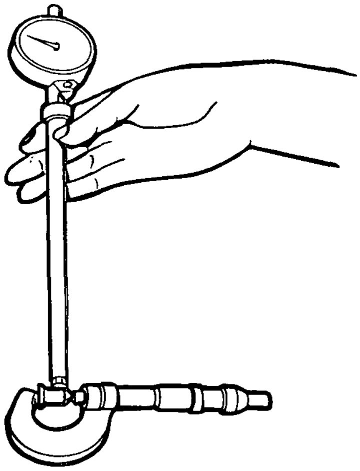
1. Measure the diameter of the piston pin.

Piston Pin Diameter:
Standard (New): **18.994–19.0 mm (0.7478–0.7480 in.)**
Oversize: **18.997–19.003 mm (0.7479–0.7481 in.)**

NOTE: All replacement piston pins are oversize.



2. Zero the dial indicator to the piston pin diameter.

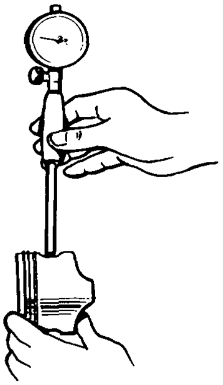


3. Measure the piston pin-to-piston clearance.

NOTE: Check the piston for distortion or cracks.

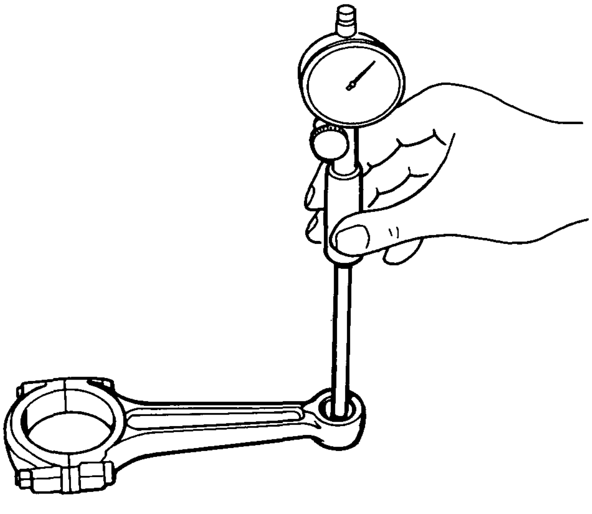
If the piston pin clearance is greater than 0.022 mm (0.0009 in.) re-measure using an oversize piston pin.

Piston Pin-to-Piston Clearance:
Service Limit: **0.010–0.022 mm (0.0004–0.0009 in.)**



4. Check the difference between piston pin diameter and connecting rod small end diameter.

Piston Pin-to-Connecting Rod Interference:
Standard (New): **0.02–0.04 mm (0.0008–0.0016 in.)**



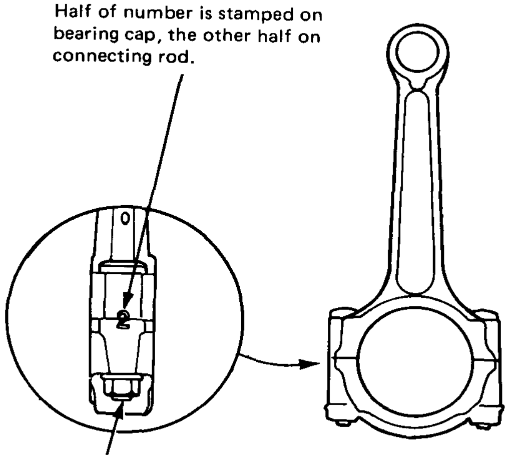
Connecting Rod Selection

Each rod is sorted into one of four tolerance ranges (from + 0.006 to 0.024 mm, in 0.006 mm increments) depending on the size of its big end bore. It's then stamped with a number (1, 2, 3, or 4) indicating that tolerance. You may find any combination of 1, 2, 3, or 4 in any engine.

Normal Bore Size:
1500: 45 mm (1.77 in.)
1300: 43 mm (1.69 in.)
1200: 43 mm (1.69 in.)

NOTE:

- Reference numbers are for big end bore size and do NOT indicate the position of rod in engine.
- Inspect connecting rod for cracks and heat damage.

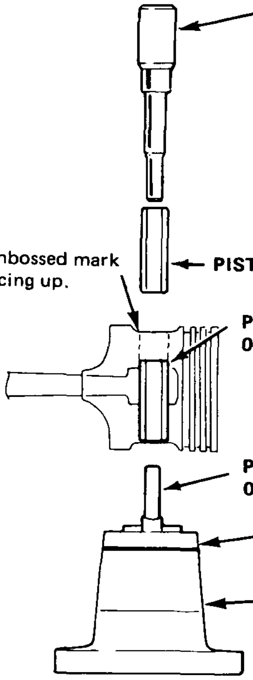


CONNECTING ROD BORE REFERENCE NUMBER
Half of number is stamped on bearing cap, the other half on connecting rod.

Inspect bolts and nuts for stress cracks.

Piston Pin Installation

Use a hydraulic press for installation. When pressing pin in, be sure you position the recessed flat on the piston against the lugs on the base attachment.



PISTON PIN DRIVER
07973-PE00301

Embossed mark facing up.

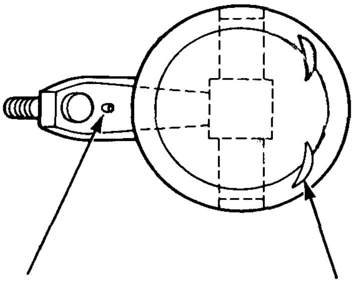
PISTON PIN

PILOT COLLAR
07973-PE00200

PISTON PIN BASE INSERT
07973-PE00400

PISTON BASE HEAD
07973-PE00100

BASE IS PART OF TOOL SET
07973-6570002
or
07973-6570001



CONNECTING ROD OIL HOLE

Assembly piston and rod so valve indent on piston is opposite rod oil hole.

NOTE: Install the assembled piston and rod with the oil hole facing the intake manifold.

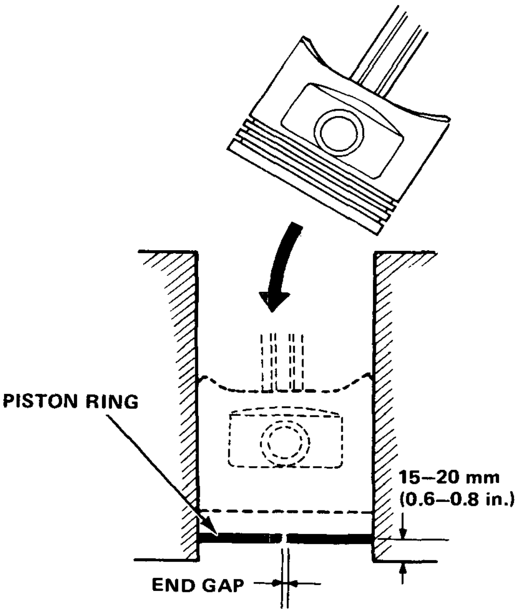
Engine Block

Piston Ring End Gap

1. Using a piston, push a new ring into the cylinder bore 15–20 mm (0.6–0.8 in.) from the bottom.
2. Measure the piston ring end-gap with a feeler gauge:
   - If the gap is too small, check to see if you have the proper rings for your engine.
   - If the gap is too large, re-check the cylinder bore diameter against the wear limits on page 7-9.
     If the bore is over limit, the engine block must be rebored.

Piston Ring End-Gap:
Top and Second Ring
Standard (New): 0.15–0.35 mm (0.006–0.014 in.)
Service Limit: 0.60 mm (0.024 in.)

Oil Ring
Standard (New): 0.3–0.9 mm (0.012–0.035 in.)
Service Limit: 1.1 mm (0.043 in.)



Piston Ring Replacement

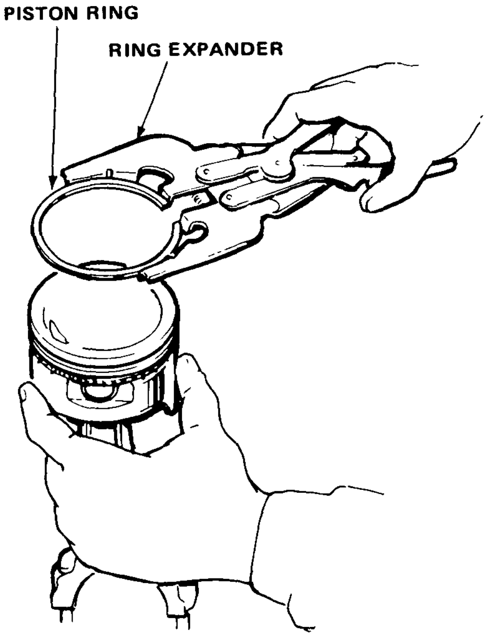
1. Using ring expander, remove old piston rings.
2. Clean all ring grooves thoroughly.

   NOTE: Use squared-off broken ring, or file down blade on ring groove cleaner to fit (compression rings are 1.5 mm wide; oil ring is 4.0 mm wide).

   CAUTION: Do not use a wire brush to clean ring lands, or cut ring lands deeper with cleaning tool.

   NOTE: If piston is to be separated from connecting rod, do not install new rings yet.
3. Install new rings in proper sequence and position (page 7-15).

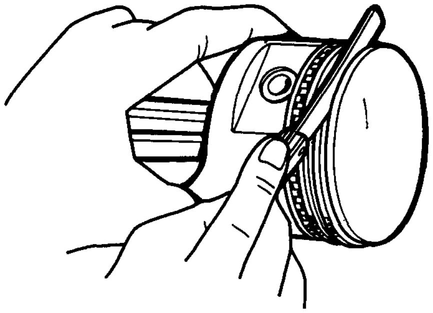
   NOTE: Do not re-use old piston rings.



Ring Land Clearances

After installing new set of rings, measure ring-to-land clearances:

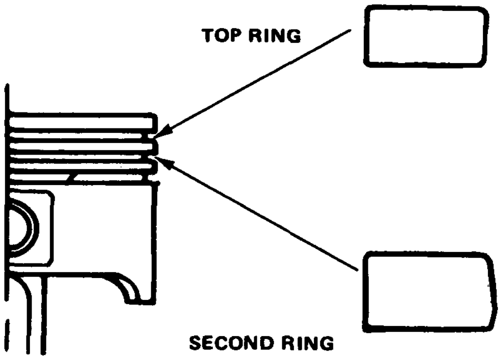
Top/Second Ring Clearance:
Standard (New): 0.03–0.06 mm
(0.0012–0.0024 in.)
Service Limit: 0.13 mm (0.005 in.)



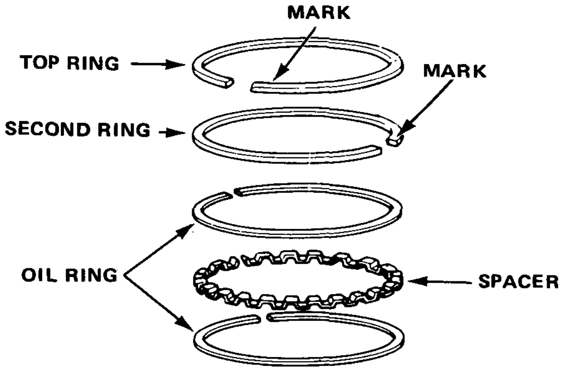
Piston Ring Alignment

1. Install the rings as shown on page 7-14.

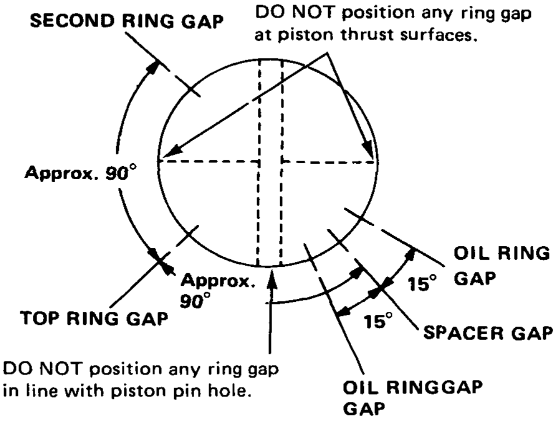
   Identify top and second rings by the chamfer on the edge, and make sure they are in proper grooves on piston.


TOP RING
SECOND RING

2. Rotate the rings in grooves to make sure they do not bind.
3. The manufacturing marks must be facing upward.


MARK
TOP RING
MARK
SECOND RING
OIL RING
SPACER

4. Position the ring end gaps as shown:


SECOND RING GAP
DO NOT position any ring gap at piston thrust surfaces.
Approx. 90°
OIL RING GAP
15°
Approx. 90°
TOP RING GAP
15°
SPACER GAP
DO NOT position any ring gap in line with piston pin hole.
OIL RINGGAP GAP

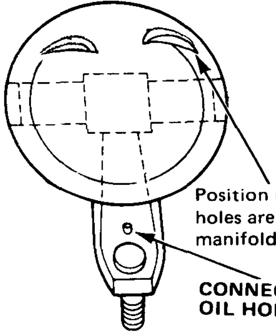
Engine Block

Piston Installation

Before installing the piston, apply a coat of engine oil to the ring grooves and cylinder bores.

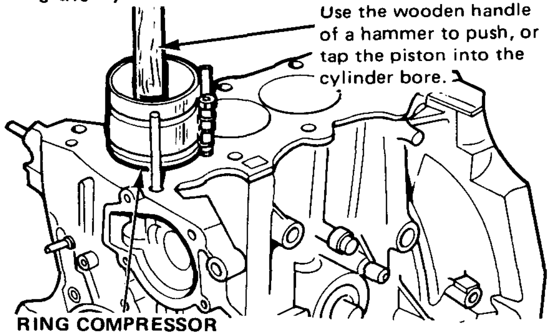
1. If the crankshaft is already installed:
   - Remove the connecting rod caps, then slip short sections of rubber hose over the threaded ends of the connecting rod bolts.
   - Install the ring compressor, check that the bearing is securely in place, then position the piston in the cylinder and drive it in using the wooden handle of a hammer.
     Stop after the ring compressor pops free and check the connecting rod-to-crank journal alignment before driving rod into place.
   - Install the rod caps with bearings, and torque the nuts to 28 N·m (2.8 kg-m, 20 lb-ft).

2. If the crankshaft is not installed:
   - Remove the rod caps and bearings, install the ring compressor, then position the piston in the cylinder and drive it in using the wooden handle of a hammer.
   - Position all pistons at top dead center.



Position rods so oil holes are toward intake manifold side.

NOTE: Maintain downward force on ring compressor to prevent rings from expanding before entering the cylinder bore.

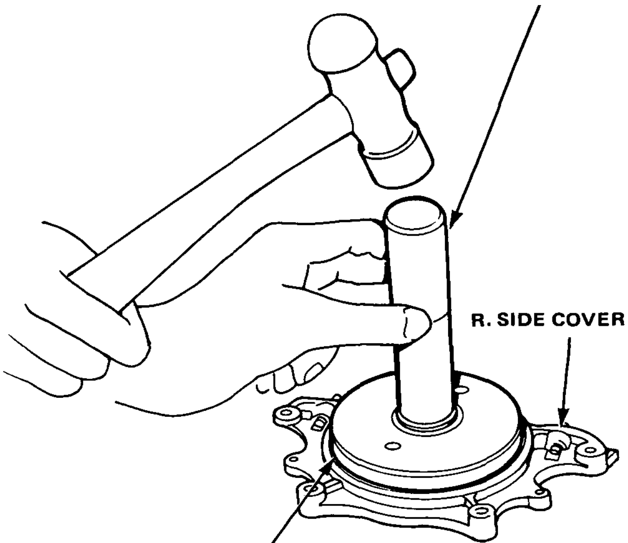


Use the wooden handle of a hammer to push, or tap the piston into the cylinder bore.

Oil Seal Installation

The seal surface on the block should be dry. Apply a light coat of oil to the crankshaft and to the lip of sael.

1. Drive in flywheel-end seal until to bottoms against R. side cover.



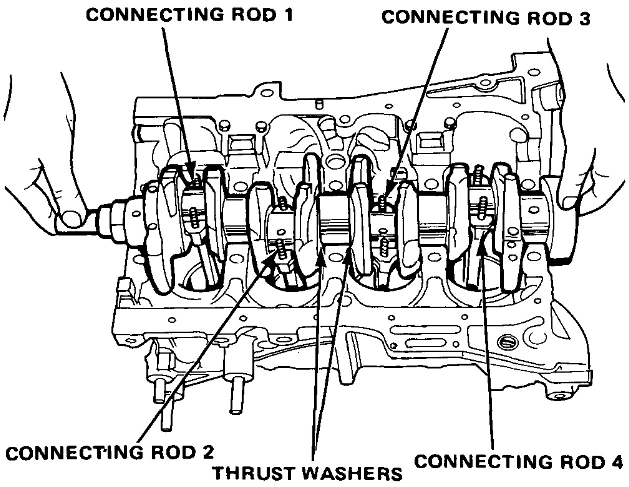
Install seal with the part number side facing out.

NOTE: Refer to page 8-7 for steps on the oil pump side oil seal.

Crankshaft Installation

Before installing the crankshaft, apply a coat of engine oil to the main bearings and rod bearings.

1. Insert bearing halves in the engine block and connecting rods.
2. Hold the crankshaft so rod journals for cylinder No. 2 and No. 3 are straight down.
3. Lower the crankshaft into the block, seating the rod journals into connecting rods No. 2 and No. 3 and install rod caps and nuts finger tight.


CONNECTING ROD 1
CONNECTING ROD 3
CONNECTING ROD 2
THRUST WASHERS
CONNECTING ROD 4

4. Rotate the crankshaft clockwise, seat journals into connecting rods No. 1 and No. 4, and install the rod caps and nuts finger tight.
5. Install the thrust washers, main bearing halves and cap, check clearance with plastigage (page 7-5), then torque the nuts to 50 N·m (5.0 kg-m, 36 lb-ft), Oil thrust washer surfaces.
6. Check the rod bearing clearance with plastigage (page 7-5), then torque nuts to 28 N·m (28 kg-m, 20 lb-ft).

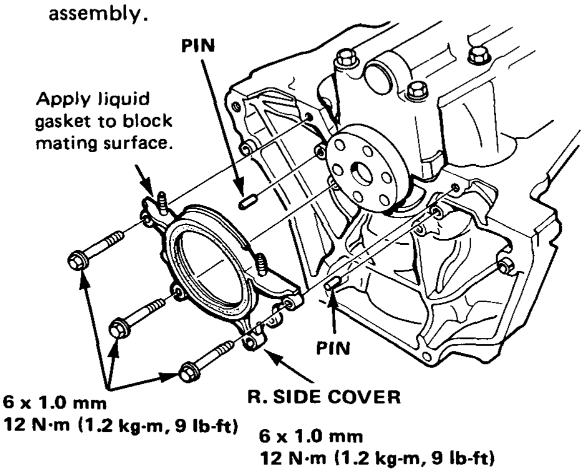
NOTE: Reference numbers on connecting rod are for big-end bore tolerance and do NOT indicate the position of piston in engine.

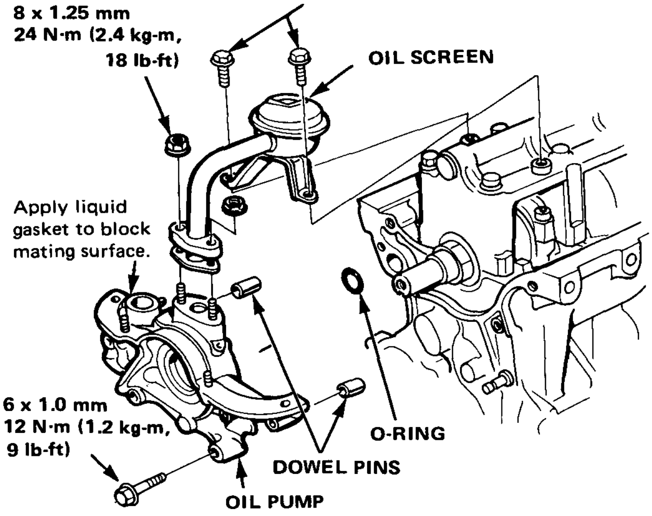
CAUTION: Whenever any crankshaft or connecting rod bearing is replaced, after reassembly run the engine at idling speed until it reaches normal operating temperature, then continue to run for approximately 15 minutes.

7. Apply non-hardening liquid gasket to the block mating surface of the right side cover and oil pump case, and install them on the engine block.

NOTE:

- Use HONDA PARTS NO 08740-99986 as a liquid gasket.
- Check that the mating surfaces are clean and dry before applying liquid gasket.
- Apply liquid gasket by starting with an even bend, centered between edges of the mating surface.
- To prevent leakage of oil, apply liquid gasket to the inner threads of the bolt holes.
- Do not allow the liquid gasket to dry before assembly.
- Fill the case with clean engine oil 30 minutes after assembly.


PIN
Apply liquid gasket to block mating surface.
PIN
6 x 1.0 mm
12 N·m (1.2 kg-m, 9 lb-ft)
R. SIDE COVER
6 x 1.0 mm
12 N·m (1.2 kg-m, 9 lb-ft)

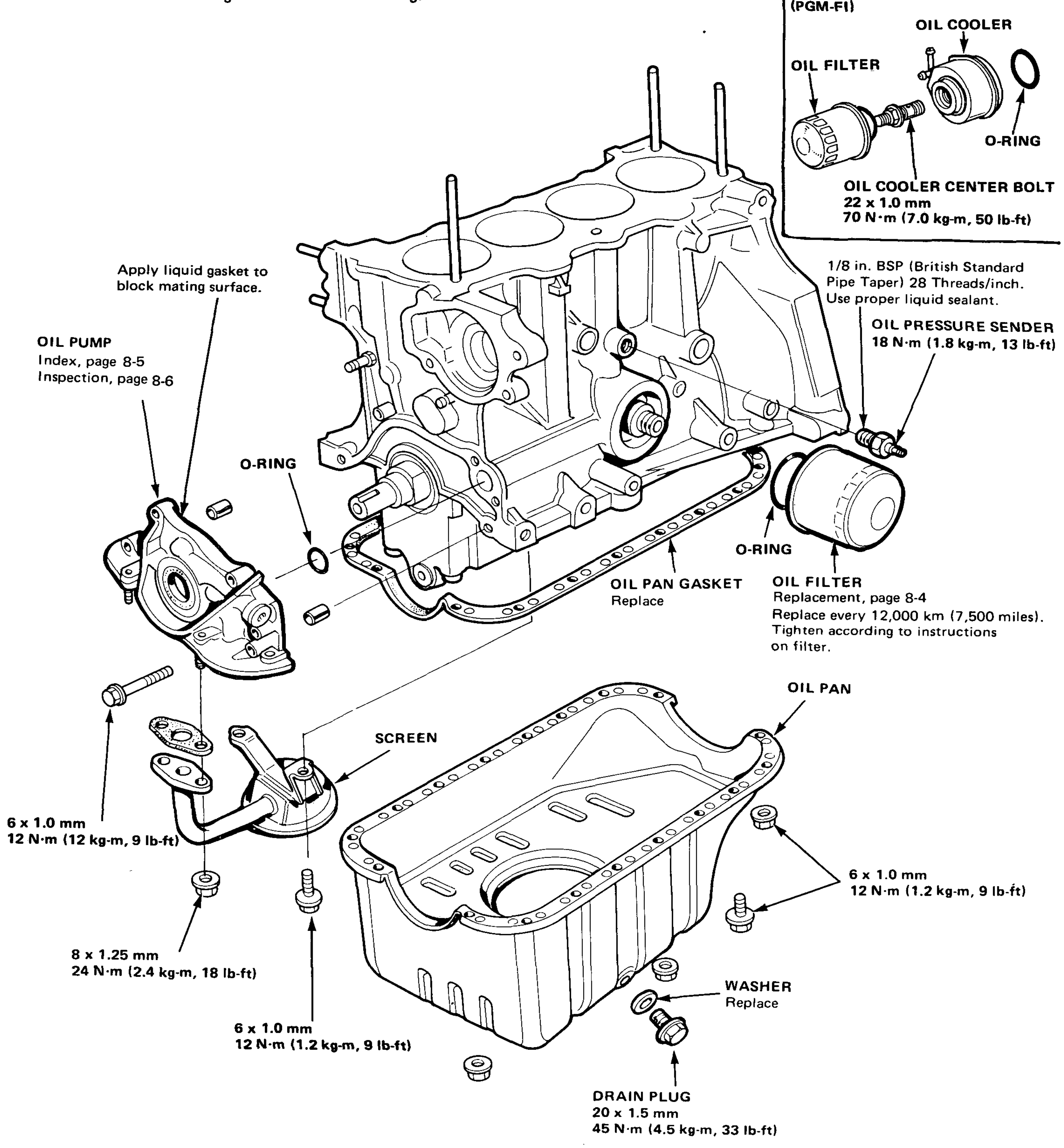

8 x 1.25 mm
24 N·m (2.4 kg-m, 18 lb-ft)
OIL SCREEN
Apply liquid gasket to block mating surface.
6 x 1.0 mm
12 N·m (1.2 kg-m, 9 lb-ft)
O-RING
DOWEL PINS
OIL PUMP

8. Install the oil strainer.
9. Install the oil pan.

Engine Lubrication

Illustrated Index

NOTE: Use new O-rings whenever reassembling.



(PGM-FI)

OIL COOLER

OIL FILTER

O-RING

OIL COOLER CENTER BOLT
22 x 1.0 mm
70 N·m (7.0 kg-m, 50 lb-ft)

Apply liquid gasket to block mating surface.

1/8 in. BSP (British Standard Pipe Taper) 28 Threads/inch.
Use proper liquid sealant.

OIL PRESSURE SENDER
18 N·m (1.8 kg-m, 13 lb-ft)

OIL PUMP
Index, page 8-5
Inspection, page 8-6

O-RING

O-RING

OIL PAN GASKET
Replace

OIL FILTER
Replacement, page 8-4
Replace every 12,000 km (7,500 miles).
Tighten according to instructions on filter.

OIL PAN

SCREEN

6 x 1.0 mm
12 N·m (12 kg-m, 9 lb-ft)

6 x 1.0 mm
12 N·m (1.2 kg-m, 9 lb-ft)

8 x 1.25 mm
24 N·m (2.4 kg-m, 18 lb-ft)

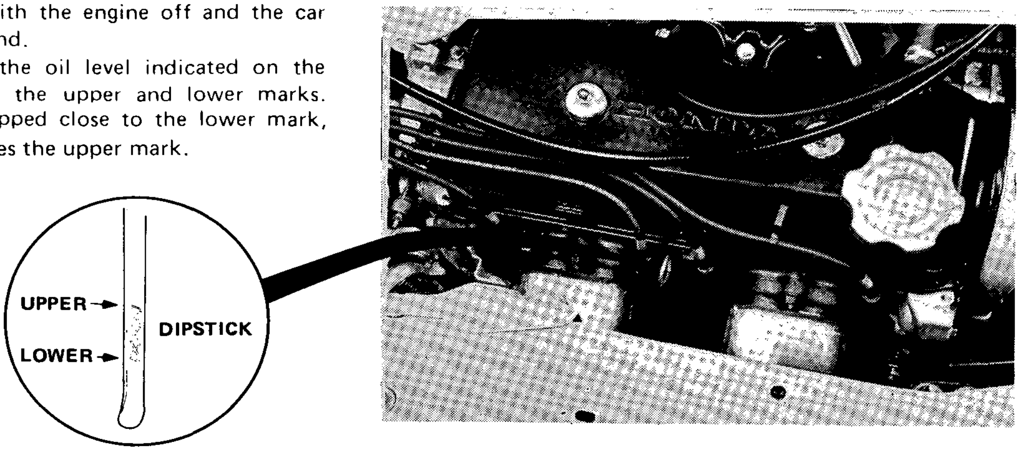
WASHER
Replace

6 x 1.0 mm
12 N·m (1.2 kg-m, 9 lb-ft)

DRAIN PLUG
20 x 1.5 mm
45 N·m (4.5 kg-m, 33 lb-ft)

Oil Level Inspection

1. Check engine oil with the engine off and the car parked on level ground.
2. Make certain that the oil level indicated on the dipstick is between the upper and lower marks.
3. If the level has dropped close to the lower mark, add oil until it reaches the upper mark.

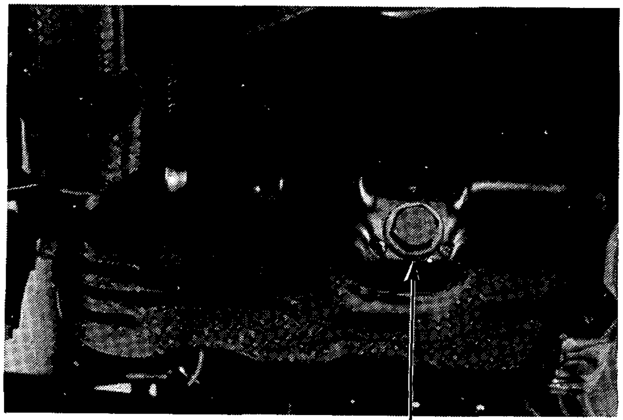


Oil Replacement

1. Warm up the engine.

2. Drain the engine oil.

   NOTE: Remove the filler cap to speed draining.



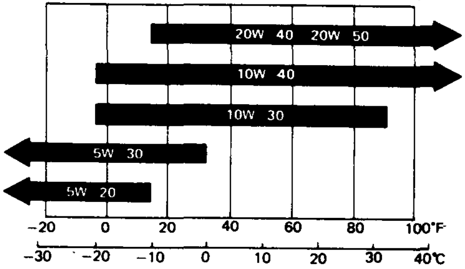
OIL PAN DRAIN PLUG
45 N·m (4.5 kg-m, 33 lb-ft)

3. Reinstall the drain plug with a new washer, and refill with the recommended oil.

Capacity	3.0 lit (3.2 US qt, 2.6 Imp. qt) Exclude oil filter 3.5 lit (3.7 US qt, 3.1 Imp. qt) Adding replace oil filter 4.0 lit (4.2 US qt, 3.5 Imp. qt) Means designed value
Change	Every 12,000 km (7,500 miles)

Canadian Model

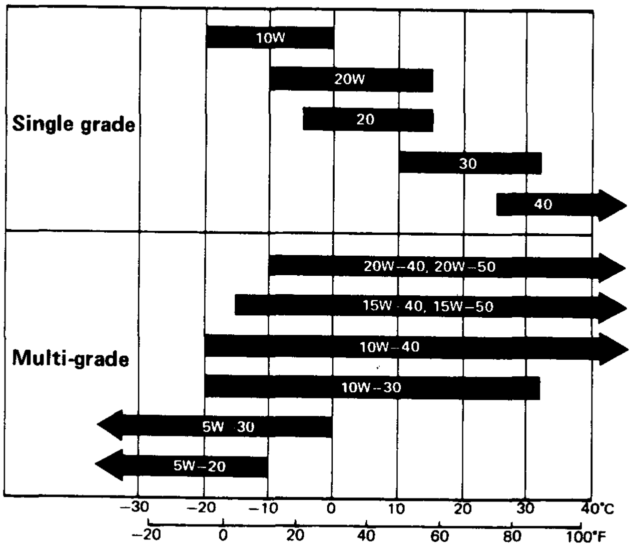
Recommended Engine Oil (SE or SF Grade only)



Expected Ambient Temperature before next oil change

Except Canadian Model

Recommended Engine Oil (SE or SF Grade only)



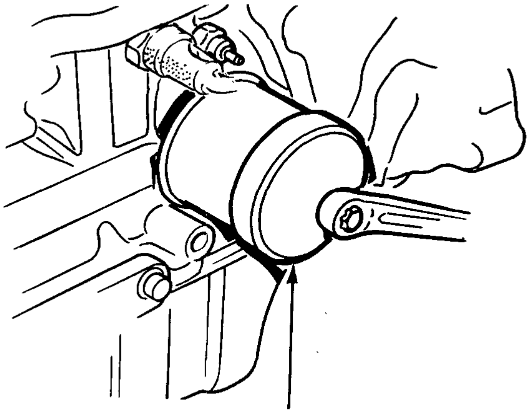
Expected Ambient Temperature before next oil change

Engine Lubrication

Oil Filter Replacement

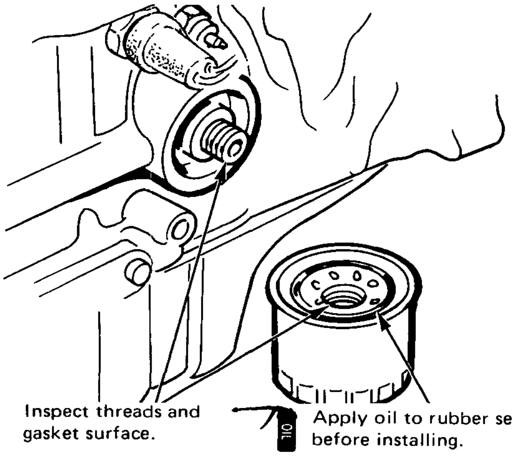
CAUTION: After the engine has been run, the exhaust pipes will be hot; be careful when working around the *exhaust manifold*.

1. Remove the oil filter with the special oil filter socket.


OIL FILTER SOCKET WRENCH
07912–6340001
28 N·m (2.8 kg-m, 20 lb-ft)

2. Inspect the threads and gasket on the new filter. Wipe off seat on engine block, then apply a light coat of oil to gasket, and install filter. Tighten according to instructions on, or with, the filter.

   NOTE: Use only filters with a built-in bypass systém.


Inspect threads and gasket surface.
OIL
Apply oil to rubber seal before installing.

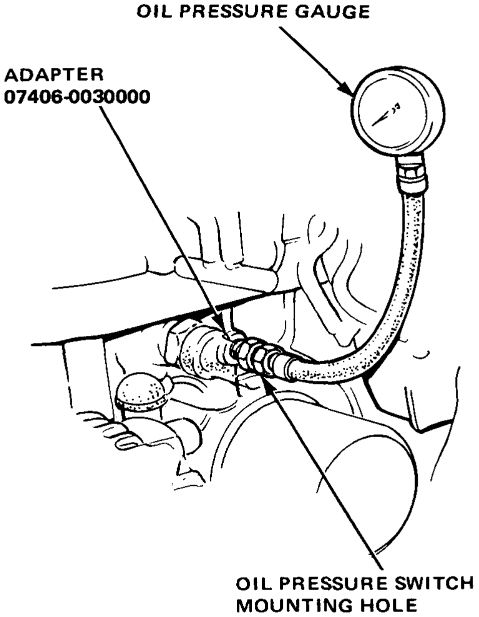
Oil Pressure Test

If the oil pressure warning light stays on with the engine running. Check the engine oil level. If the oil level is correct:

1. Remove the oil pressure sender and install an oil pressure gauge.
2. Start the engine and allow to reach operating temperature (fan comes on at loast twice).
3. Pressure should be:

   Engine Oil Pressure:
   Idle: 147 kPa (1.5 kg/cm^2, 21 psi) minimum
   3,000 min^{-1} (rpm): 333–340 kPa (3.4–4.2 kg/cm^2, 48–60 psi)

   - If oil pressure is within specifications, replace oil pressure sender and recheck.
   - If oil pressure is NOT within specifications, inspect oil pump (pages 8-6 and 7).

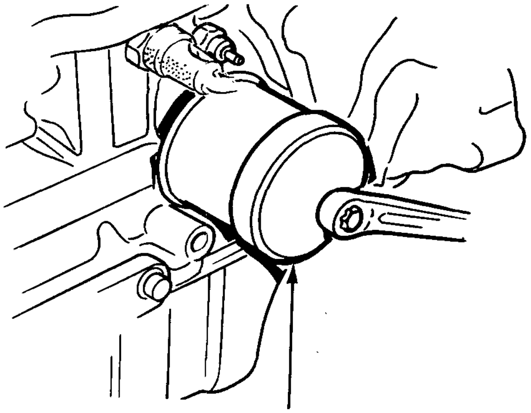

OIL PRESSURE GAUGE
ADAPTER
07406-0030000
OIL PRESSURE SWITCH
MOUNTING HOLE

Engine Lubrication

Oil Filter Replacement

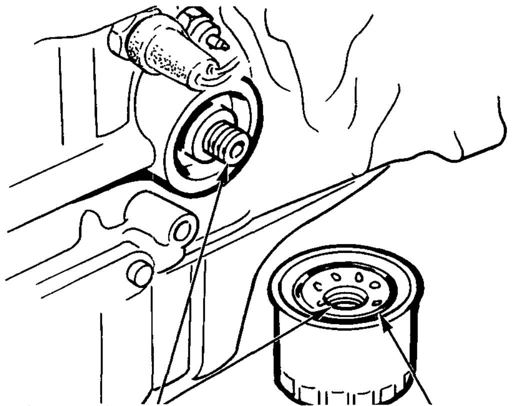
CAUTION: After the engine has been run, the exhaust pipes will be hot; be careful when working around the *exhaust manifold*.

1. Remove the oil filter with the special oil filter socket.


OIL FILTER SOCKET WRENCH
07912–6340001
28 N·m (2.8 kg-m, 20 lb-ft)

2. Inspect the threads and gasket on the new filter. Wipe off seat on engine block, then apply a light coat of oil to gasket, and install filter. Tighten according to instructions on, or with, the filter.

   NOTE: Use only filters with a built-in bypass system.


Inspect threads and gasket surface.
OIL
Apply oil to rubber seal before installing.

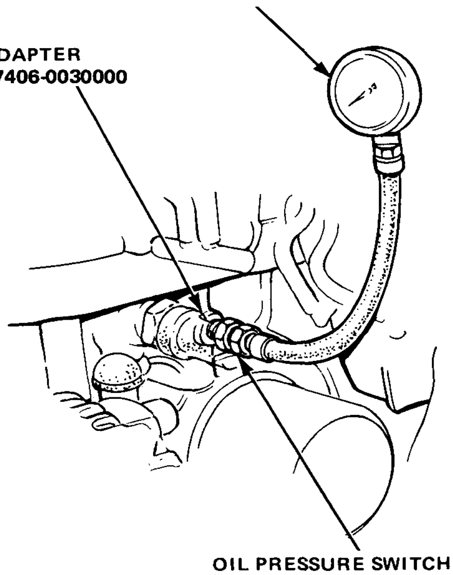
Oil Pressure Test

If the oil pressure warning light stays on with the engine running. Check the engine oil level. If the oil level is correct:

1. Remove the oil pressure sender and install an oil pressure gauge.
2. Start the engine and allow to reach operating temperature (fan comes on at loast twice).
3. Pressure should be:

   Engine Oil Pressure:
   Idle: 147 kPa (1.5 kg/cm^2, 21 psi) minimum
   3,000 min^{-1} (rpm): 333–340 kPa (3.4–4.2 kg/cm^2, 48–60 psi)

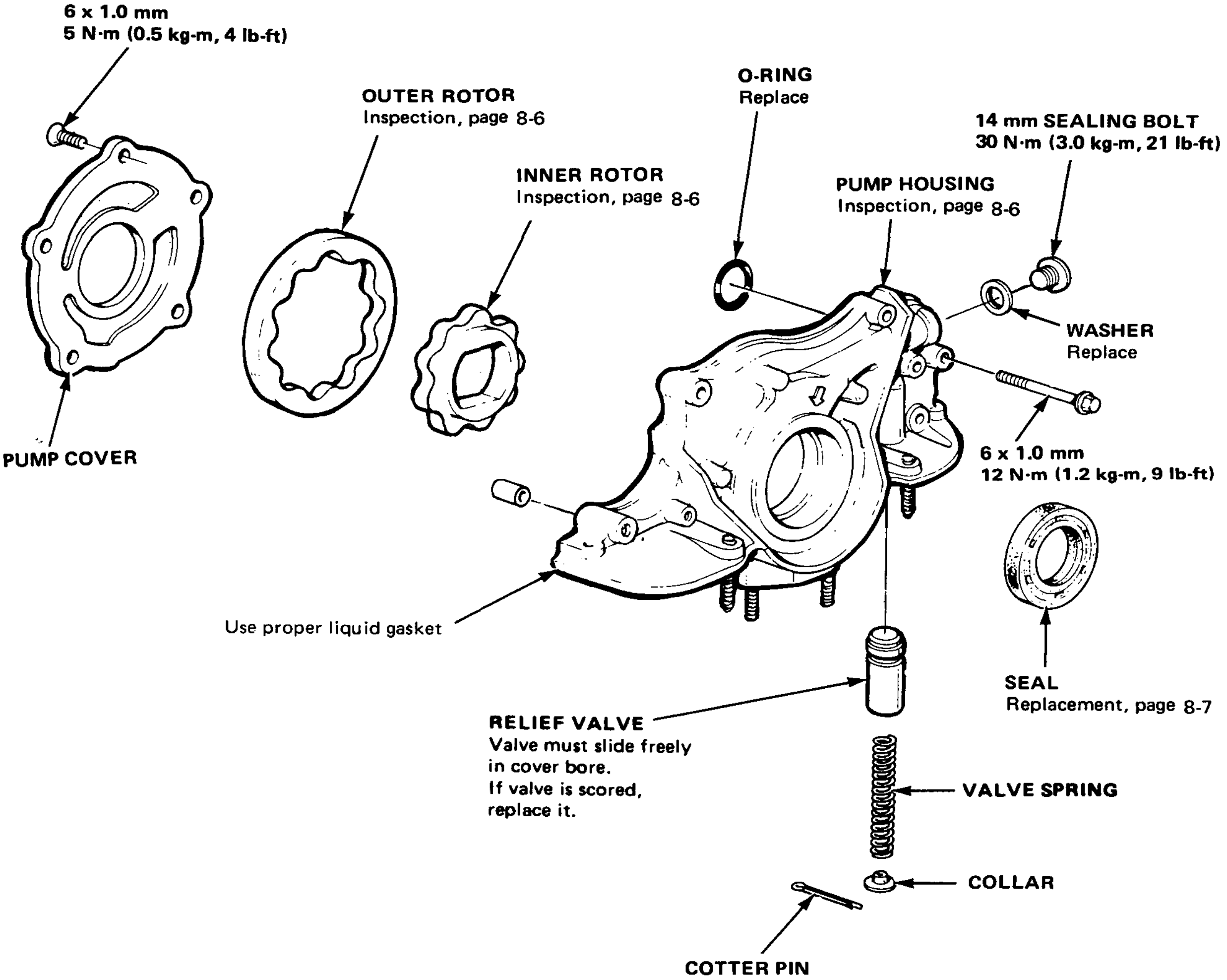
   - If oil pressure is within specifications, replace oil pressure sender and recheck.
   - If oil pressure is NOT within specifications, inspect oil pump (pages 8-6 and 7).


OIL PRESSURE GAUGE
ADAPTER
07406-0030000
OIL PRESSURE SWITCH MOUNTING HOLE

Oil Pump Illustrated Index

NOTE:

- Note the installation direction of the rotors.
- After assembling, check that the rotors turn smoothly.

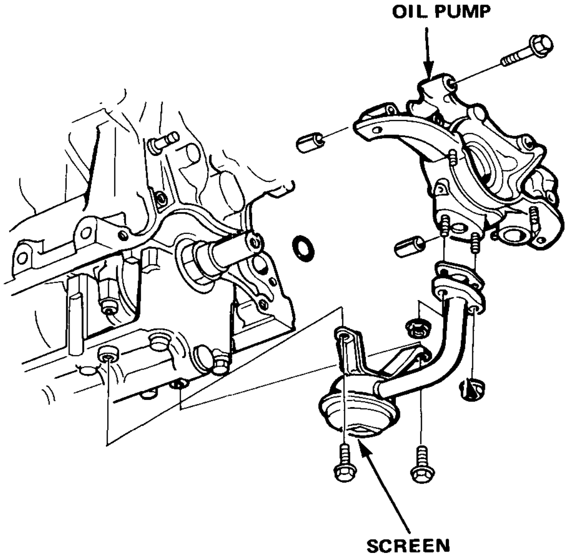


6 x 1.0 mm
5 N·m (0.5 kg-m, 4 lb-ft)
OUTER ROTOR
Inspection, page 8-6
O-RING
Replace
14 mm SEALING BOLT
30 N·m (3.0 kg-m, 21 lb-ft)
INNER ROTOR
Inspection, page 8-6
PUMP HOUSING
Inspection, page 8-6
WASHER
Replace
PUMP COVER
6 x 1.0 mm
12 N·m (1.2 kg-m, 9 lb-ft)
Use proper liquid gasket
SEAL
Replacement, page 8-7
RELIEF VALVE
Valve must slide freely in cover bore.
If valve is scored, replace it.
VALVE SPRING
COLLAR
COTTER PIN

Engine Lubrication

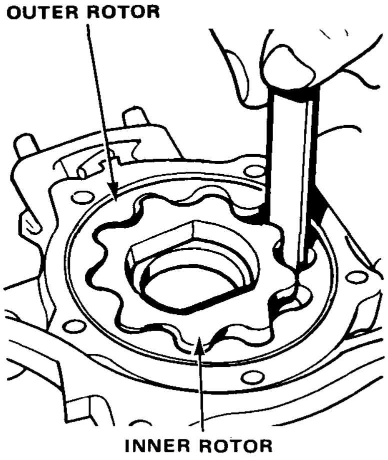
Oil Pump Removal/Inspection

1. Drain the engine oil.
2. Turn the crankshaft and align the "T" mark on the crankshaft pulley with the index mark on the cover.
3. Remove the cylinder head cover and timing belt upper cover.
4. Remove the alternator belt.
5. Remove the crankshaft pulley and remove the timing belt lower cover.
6. Release the belt tensioner, and remove the timing belt and driven pulley.
7. Remove the oil pan.
8. Remove the oil screen.
9. Remove the mounting bolts and the oil pump assembly.



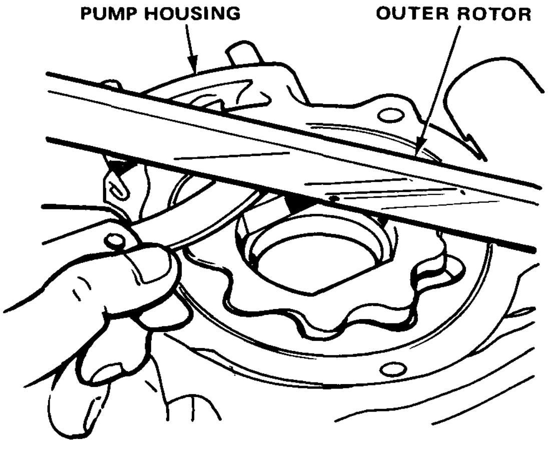
10. Remove the five screws from the pump housing, then separate the housing and cover.
11. Check the radial clearance on the pump rotor.

Rotor Radial Clearance
Standard (New): 0.14 mm (0.006 in.)
Service Limit: 0.2 mm (0.008 in.)



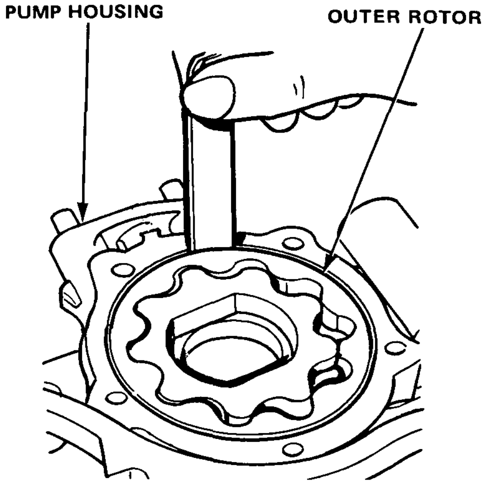
12. Check the axial clearance on the outer pump rotor.

Housing-to-Rotor Axial Clearance
Standard (New): 0.03– 0.08 mm
(0.001– 0.003 in.)
Service Limit: 0.15 mm (0.006 in.)



13. Check the radial clearance between the housing and the outer rotor.

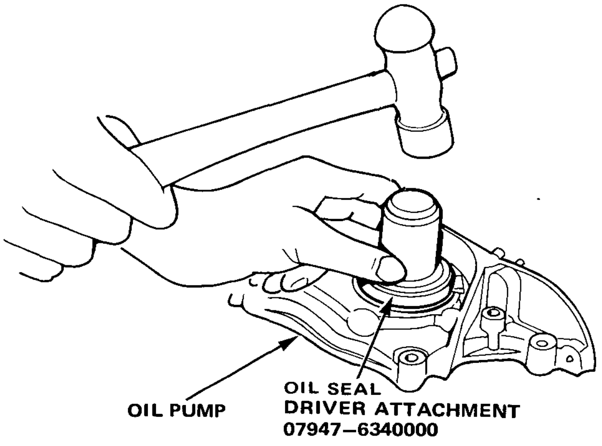
Housing-to-Rotor Radial Clearance
Standard (New): 0.1–0.175 mm
(0.004–0.007 in.)
Service Limit: 0.2 mm (0.008 in.)


PUMP HOUSING
OUTER ROTOR

14. Inspect both rotors and pump housing for scoring or other damage.
Replace parts as necessary.

15. Remove the old oil seal from the oil pump.

16. Gently tap in the new oil seal until the tool bottoms on the pump.


OIL PUMP
OIL SEAL
DRIVER ATTACHMENT
07947–6340000

17. Reassemble the oil pump, applying locking fluid to the pump housing screws.

18. Check that the oil pump turns freely.

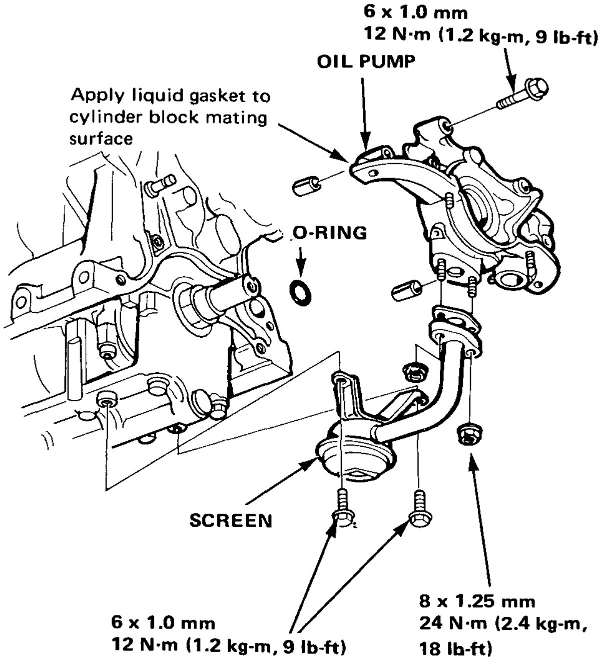
19. Apply a light coat of oil to the seal lip.

20. Install the two dowel pins and new O-ring on the cylinder block.

21. Apply liquid gasket to the cylinder block mating surface of the oil pump.

NOTE:

- Use HONDA PART NO. 08740–99986 as a liquid gasket.
- Check that the mating surfaces are clean and dry before applying liquid gasket.
- Apply liquid gasket evenly, in a narrow bead centered on the mating surface.
- To prevent leakage of oil, apply liquid gasket to the inner threads of the bolt holes.
- Do not allow the liquid gasket to dry before assembly.
- Fill the case with clean engine oil 30 minutes after assembly.

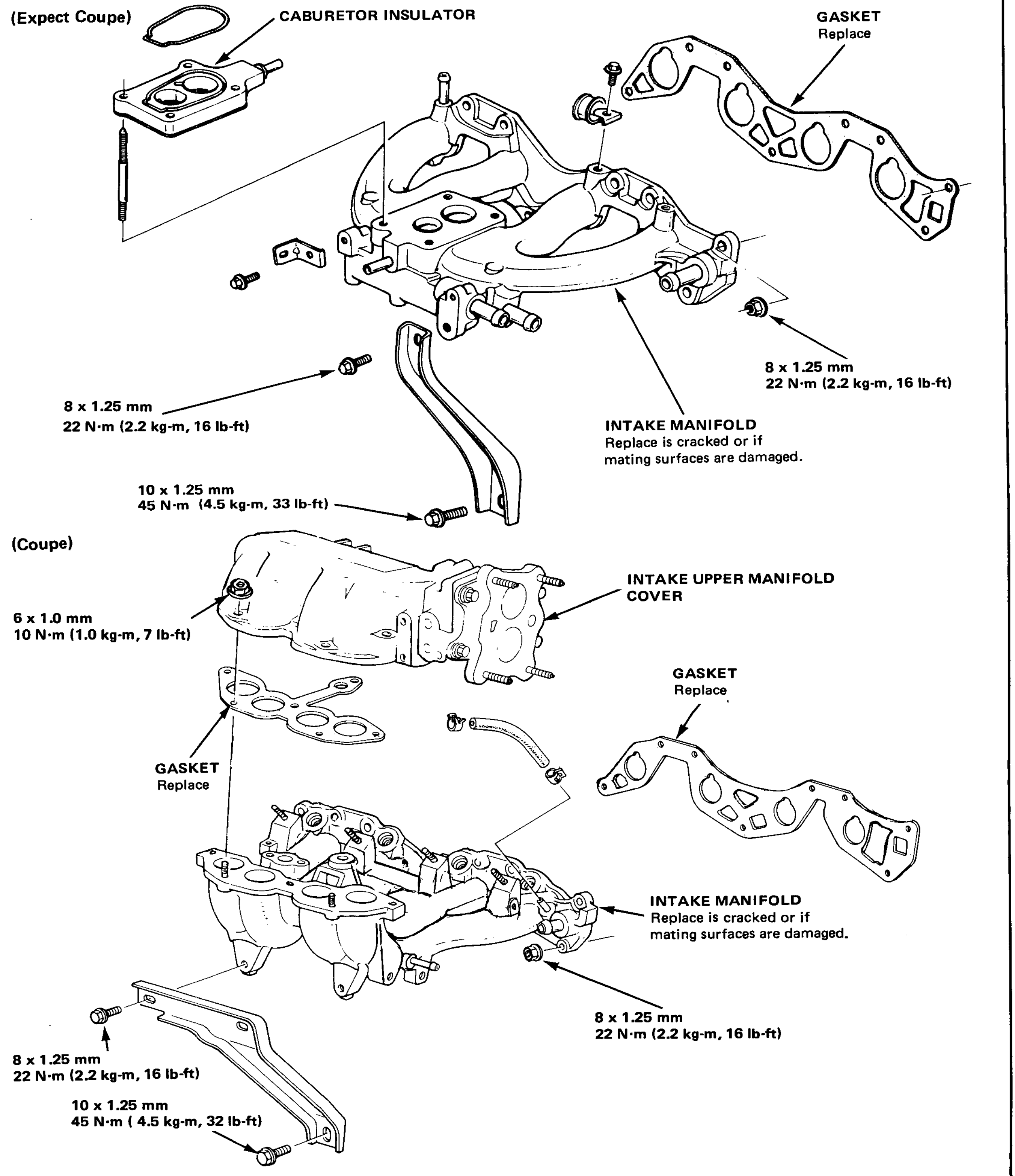

6 x 1.0 mm
12 N·m (1.2 kg-m, 9 lb-ft)
OIL PUMP
Apply liquid gasket to cylinder block mating surface
O-RING
SCREEN
6 x 1.0 mm
12 N·m (1.2 kg-m, 9 lb-ft)
8 x 1.25 mm
24 N·m (2.4 kg-m, 18 lb-ft)

22. Install the oil pump on the cylinder block.

23. Install the oil screen.

Intake Manifold/Exhaust System

Intake Manifold Replacement



(Expect Coupe)

CABURETOR INSULATOR

GASKET
Replace

8 x 1.25 mm
22 N·m (2.2 kg-m, 16 lb-ft)

8 x 1.25 mm
22 N·m (2.2 kg-m, 16 lb-ft)

INTAKE MANIFOLD
Replace is cracked or if mating surfaces are damaged.

10 x 1.25 mm
45 N·m (4.5 kg-m, 33 lb-ft)

(Coupe)

6 x 1.0 mm
10 N·m (1.0 kg-m, 7 lb-ft)

INTAKE UPPER MANIFOLD COVER

GASKET
Replace

GASKET
Replace

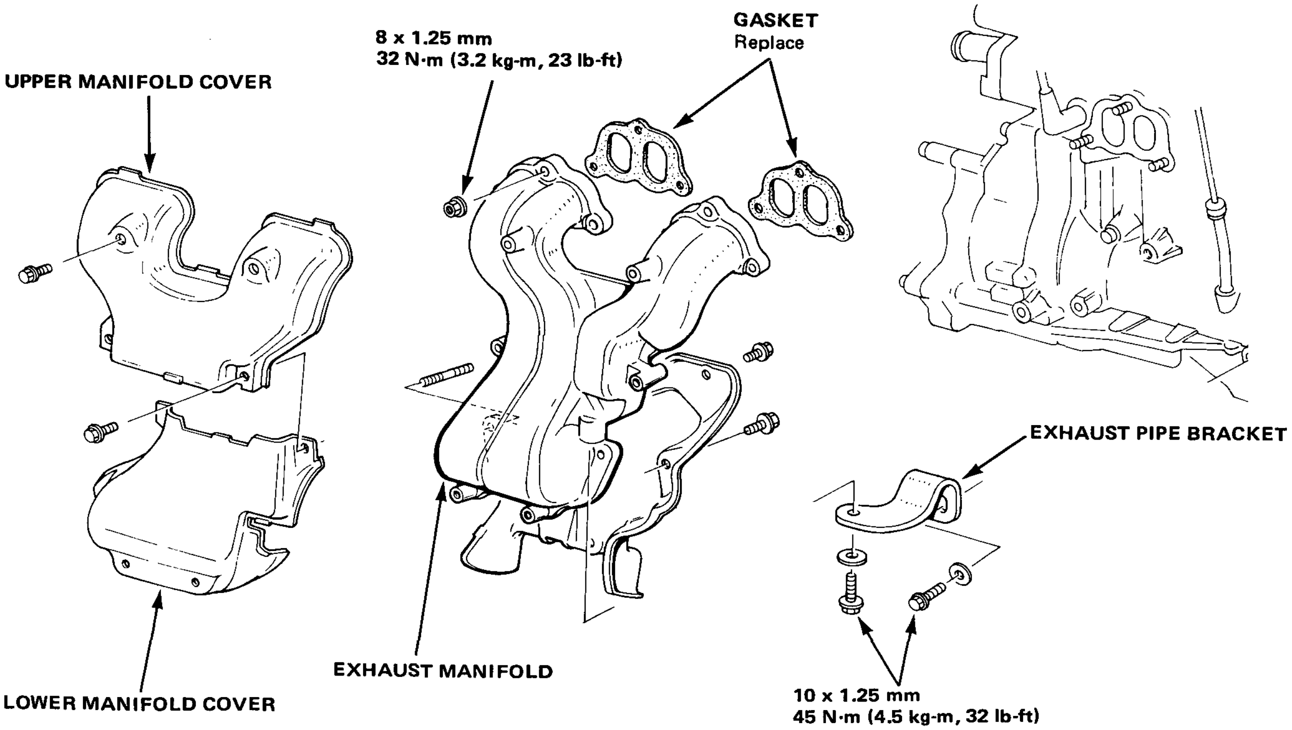
INTAKE MANIFOLD
Replace is cracked or if mating surfaces are damaged.

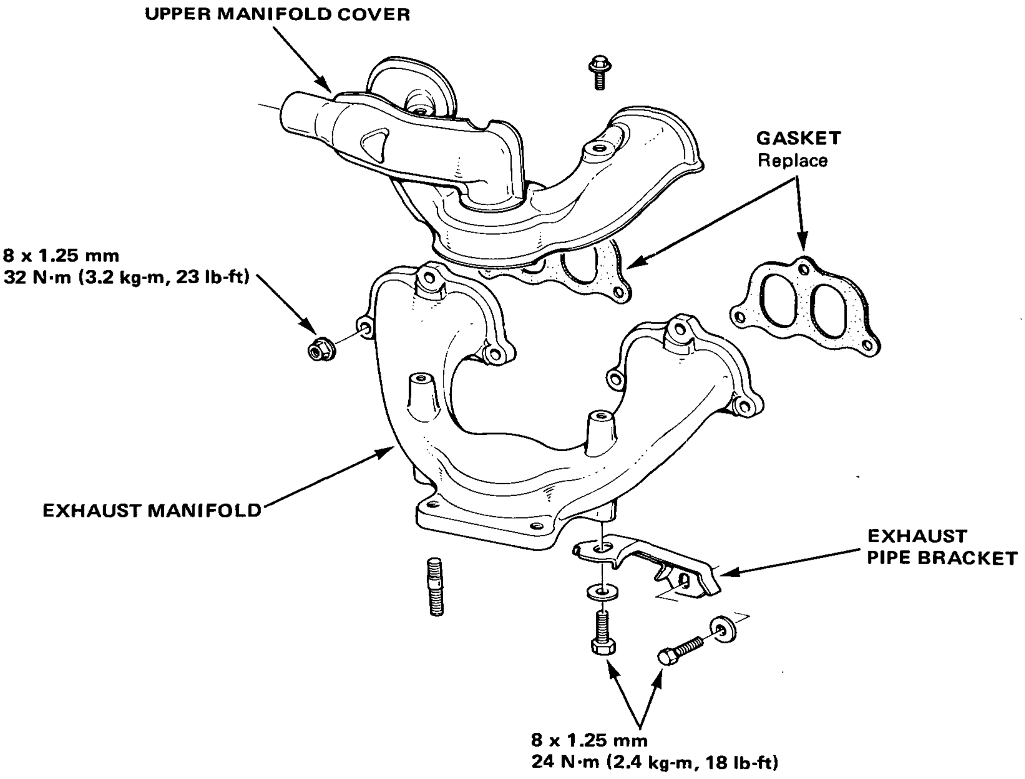
8 x 1.25 mm
22 N·m (2.2 kg-m, 16 lb-ft)

8 x 1.25 mm
22 N·m (2.2 kg-m, 16 lb-ft)

10 x 1.25 mm
45 N·m (4.5 kg-m, 32 lb-ft)

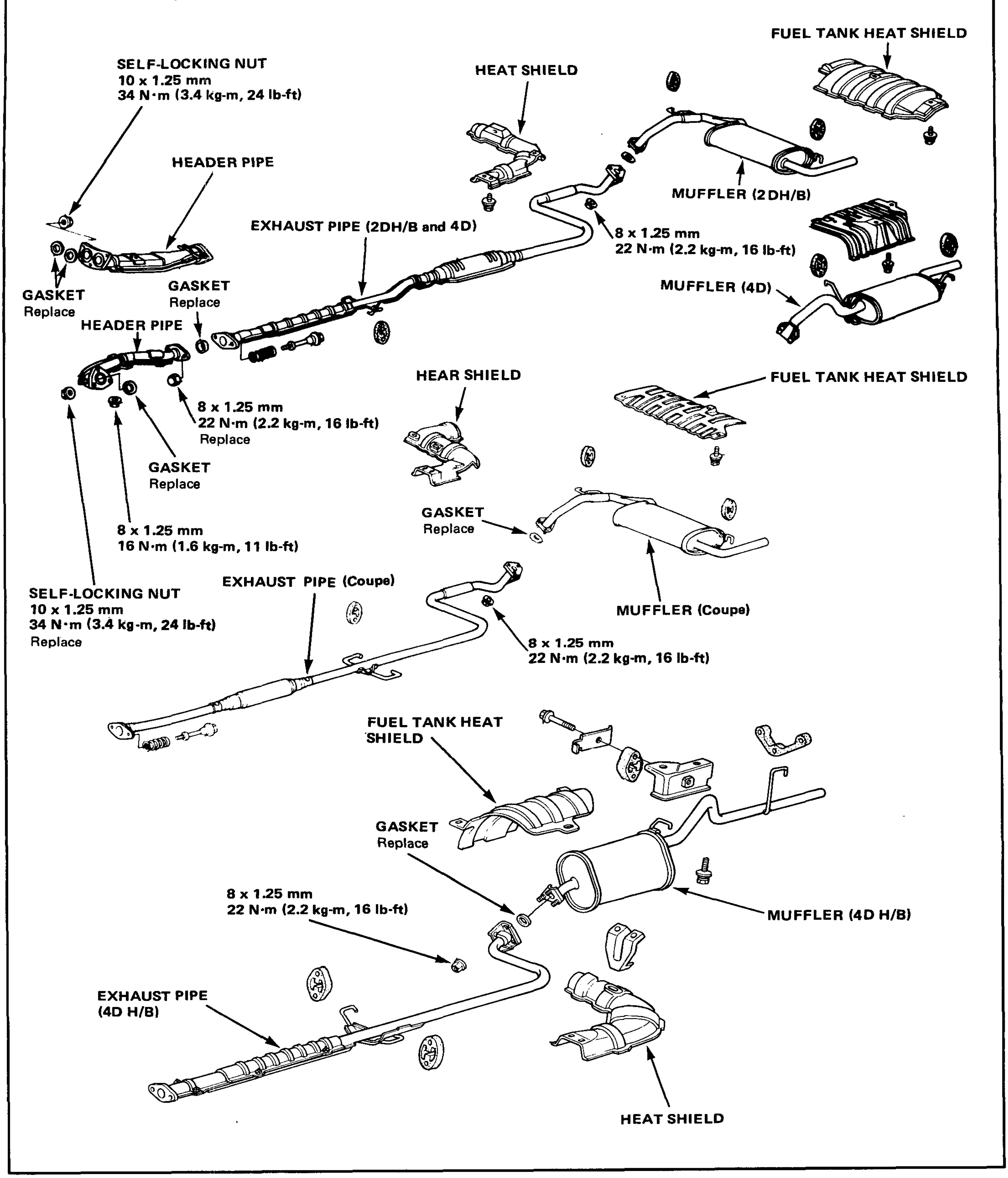
Exhaust Manifold Replacement


UPPER MANIFOLD COVER
8 x 1.25 mm
32 N·m (3.2 kg-m, 23 lb-ft)
GASKET
Replace
EXHAUST PIPE BRACKET
EXHAUST MANIFOLD
LOWER MANIFOLD COVER
10 x 1.25 mm
45 N·m (4.5 kg-m, 32 lb-ft)


UPPER MANIFOLD COVER
GASKET
Replace
8 x 1.25 mm
32 N·m (3.2 kg-m, 23 lb-ft)
EXHAUST MANIFOLD
EXHAUST
PIPE BRACKET
8 x 1.25 mm
24 N·m (2.4 kg-m, 18 lb-ft)

Intake Manifold/Exhaust System

Exhaust Pipe and Muffler Replacement


FUEL TANK HEAT SHIELD
SELF-LOCKING NUT
10 x 1.25 mm
34 N·m (3.4 kg-m, 24 lb-ft)
HEAT SHIELD
HEADER PIPE
MUFFLER (2DH/B)
EXHAUST PIPE (2DH/B and 4D)
8 x 1.25 mm
22 N·m (2.2 kg-m, 16 lb-ft)
GASKET
Replace
GASKET
Replace
MUFFLER (4D)
HEADER PIPE
HEAR SHIELD
FUEL TANK HEAT SHIELD
8 x 1.25 mm
22 N·m (2.2 kg-m, 16 lb-ft)
Replace
GASKET
Replace
GASKET
Replace
8 x 1.25 mm
16 N·m (1.6 kg-m, 11 lb-ft)
SELF-LOCKING NUT
10 x 1.25 mm
34 N·m (3.4 kg-m, 24 lb-ft)
Replace
EXHAUST PIPE (Coupe)
MUFFLER (Coupe)
8 x 1.25 mm
22 N·m (2.2 kg-m, 16 lb-ft)
FUEL TANK HEAT SHIELD
GASKET
Replace
8 x 1.25 mm
22 N·m (2.2 kg-m, 16 lb-ft)
MUFFLER (4D H/B)
EXHAUST PIPE
(4D H/B)
HEAT SHIELD

Radiator

Replacement

(Except Coupe)

WARNING

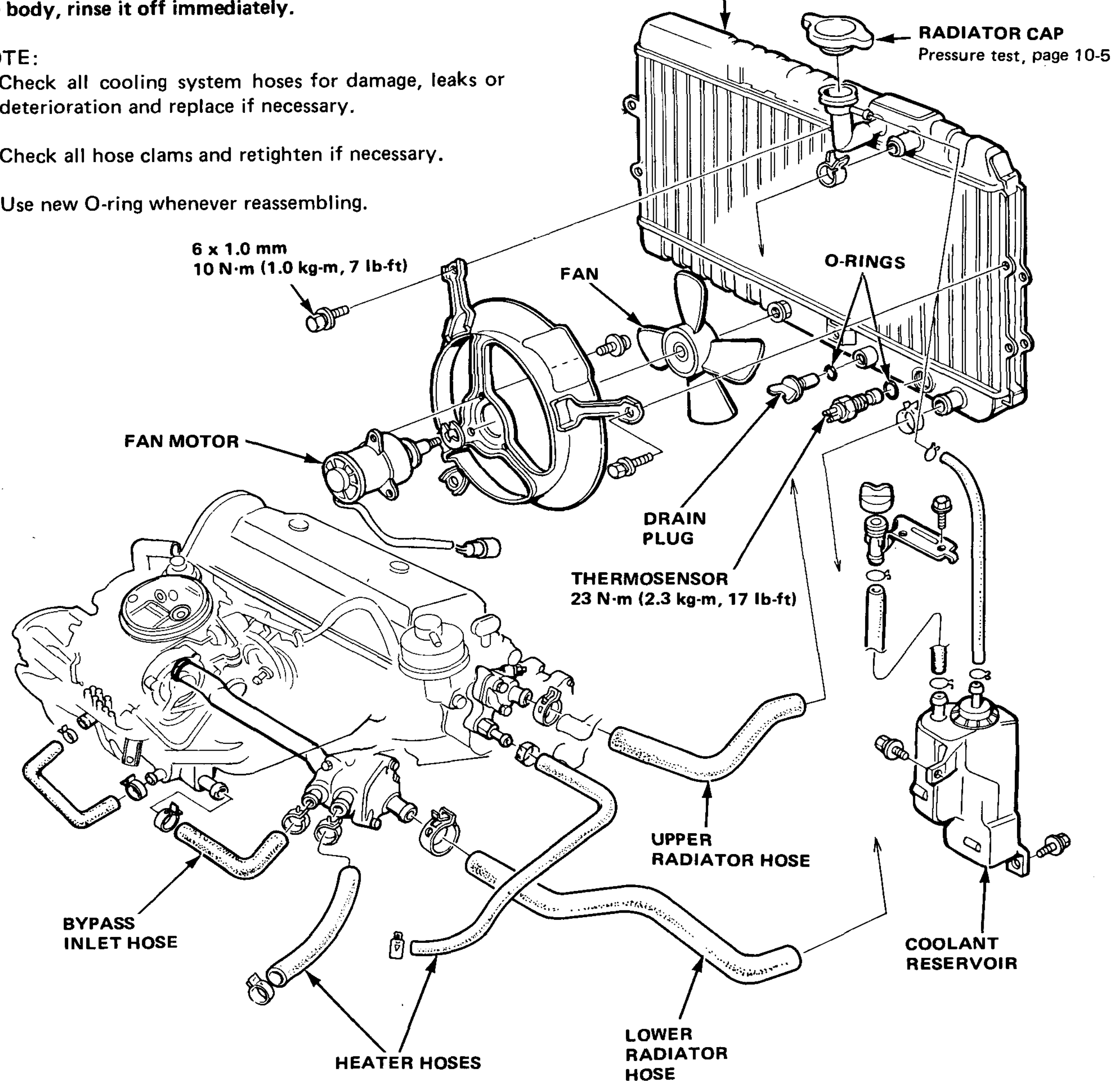
- **System is under high pressure when engine is hot. To avoid danger of releasing scalding coolant, remove cap only when engine is cool.**

Total Cooling System Capacity (Incl. heater, incl. reservoir tank):

See Specifications Section, page 3-3.

CAUTION: **If any coolant spills on painted portions of the body, rinse it off immediately.**

NOTE:
- Check all cooling system hoses for damage, leaks or deterioration and replace if necessary.
- Check all hose clams and retighten if necessary.
- Use new O-ring whenever reassembling.



RADIATOR
Leak test, page 10-5
Refilling, page 10-4
Inspect soldered joints and seams for leaks.
Blow dirt out from between core fins with compressed air.
If insects, etc., are clogging radiator, wash them off with low pressure water

RADIATOR CAP
Pressure test, page 10-5

6 x 1.0 mm
10 N·m (1.0 kg-m, 7 lb-ft)
FAN
O-RINGS
FAN MOTOR
DRAIN PLUG
THERMOSENSOR
23 N·m (2.3 kg-m, 17 lb-ft)
UPPER RADIATOR HOSE
BYPASS INLET HOSE
COOLANT RESERVOIR
HEATER HOSES
LOWER RADIATOR HOSE

(Coupe)

WARNING

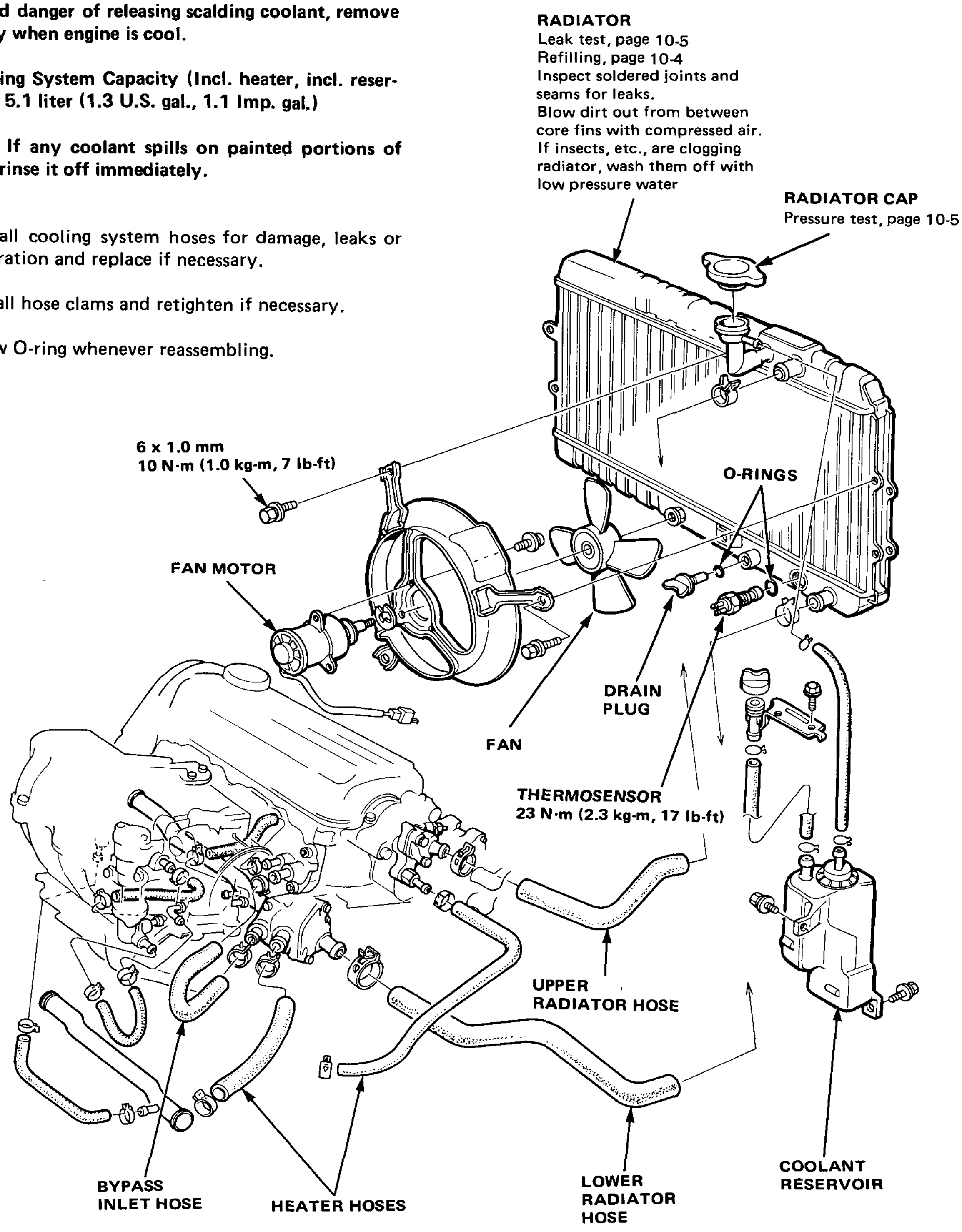
- **System is under high pressure when engine is hot. To avoid danger of releasing scalding coolant, remove cap only when engine is cool.**

Total Cooling System Capacity (Incl. heater, incl. reservoir tank): 5.1 liter (1.3 U.S. gal., 1.1 Imp. gal.)

CAUTION: **If any coolant spills on painted portions of the body, rinse it off immediately.**

NOTE:

- Check all cooling system hoses for damage, leaks or deterioration and replace if necessary.
- Check all hose clams and retighten if necessary.
- Use new O-ring whenever reassembling.


RADIATOR
Leak test, page 10-5
Refilling, page 10-4
Inspect soldered joints and seams for leaks.
Blow dirt out from between core fins with compressed air.
If insects, etc., are clogging radiator, wash them off with low pressure water
RADIATOR CAP
Pressure test, page 10-5
6 x 1.0 mm
10 N·m (1.0 kg-m, 7 lb-ft)
O-RINGS
FAN MOTOR
DRAIN PLUG
FAN
THERMOSENSOR
23 N·m (2.3 kg-m, 17 lb-ft)
UPPER RADIATOR HOSE
BYPASS INLET HOSE
HEATER HOSES
LOWER RADIATOR HOSE
COOLANT RESERVOIR

Radiator

Refilling and Bleeding

1. Set the heater temperature lever to maximum heat.

2. When the radiator is cool, remove the radiator cap and drain plug, and drain the radiator.

3. Reinstall the radiator drain plug and tighten it securely.

4. Remove, drain and reinstall the reserve tank. Fill the tank halfway to the MAX mark with water, then up to the MAX mark with coolant.

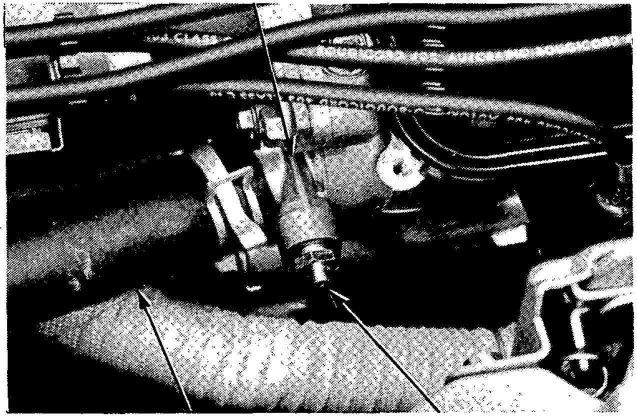
5. Mix the recommended anti-freeze with an equal amount of water, in a clean container.

   NOTE:
   - Use only HONDA-RECOMMENDED anti-freeze/coolant.
   - For best corrosion protection, the coolant concentration must be maintained year-round at 50% MINIMUM. Coolant concentrations less than 50% may not provide sufficient protection against corrosion or freezing.
   - Coolant concentrations greater than 60% will impair cooling efficiency and are not recommended.

   CAUTION:
   - **Do not mix different brand anti-freeze/coolants.**
   - **Do not use additional rust inhibitors or anti-rust products; they may not be compatible with the recommended coolant.**

   Radiator Coolant Refill Capacity (Incl. reserve tank): See Specifications Section, page 3-3.

6. Loosen the air bleed bolt in the water outlet, then fill the radiator to the bottom of the filler neck with the coolant mixture. Tighten the bleed bolt as soon as coolant starts to run out in a steady stream without bubbles.

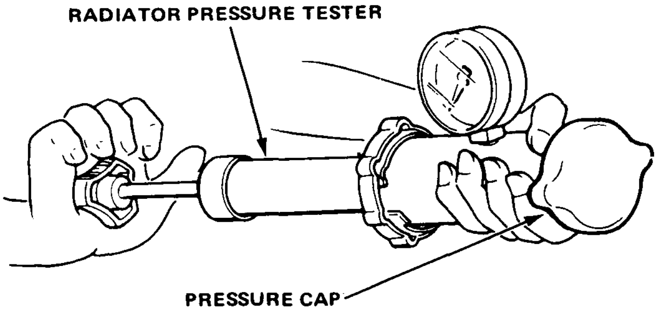


7. With the radiator cap off, start the engine and let it run until warmed up (fan goes on at least twice). Then, if necessary add more coolant mix to bring the level back up to the bottom of the filler neck.

8. Put the radiator cap on, then run the engine again and check for leaks.

Cap Testing

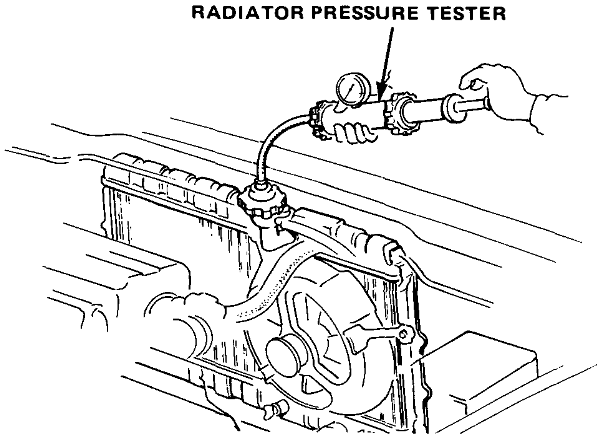
1. Remove the radiator cap, wet its seal with coolant, then install it on the pressure tester.
2. Apply a pressure of 0.75–1.05 kg/cm^2 (78–98 kPa, 11–14 psi).
3. Check for a drop in pressure.


RADIATOR PRESSURE TESTER
PRESSURE CAP

Radiator Testing

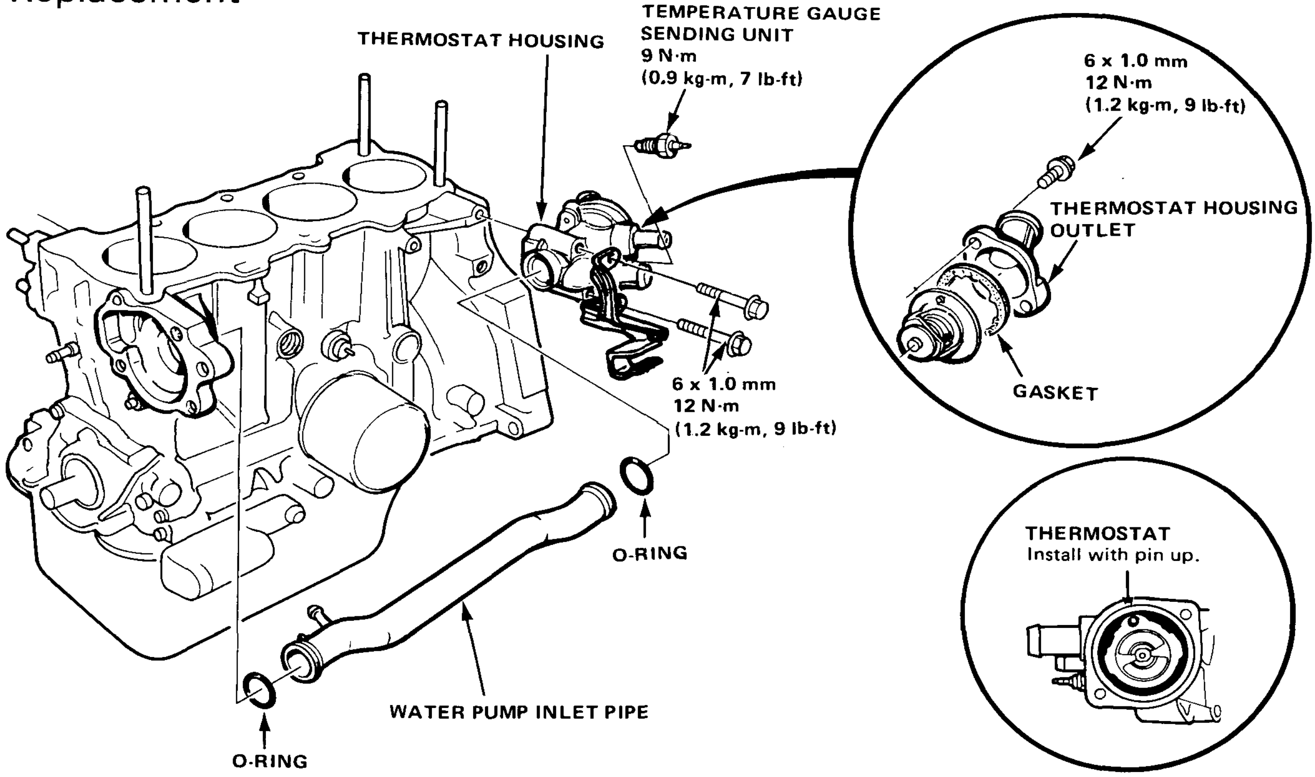
1. Wait until the engine is cool, then carefully remove the pressure cap and fill the radiator with coolant to the top of the filler neck.
2. Attach the pressure tester to the radiator and apply a pressure of 0.75–1.05 kg/cm^2 (78–98 kPa, 11–14 psi).
3. Inspect for coolant leaks and a drop in pressure.
4. Remove the tester and reinstall the pressure cap.

   NOTE: Check for engine oil in coolant and/or coolant in engine oil.


RADIATOR PRESSURE TESTER

Thermostat

Replacement


THERMOSTAT HOUSING
TEMPERATURE GAUGE SENDING UNIT
9 N·m
(0.9 kg-m, 7 lb-ft)
6 x 1.0 mm
12 N·m
(1.2 kg-m, 9 lb-ft)
THERMOSTAT HOUSING OUTLET
GASKET
6 x 1.0 mm
12 N·m
(1.2 kg-m, 9 lb-ft)
O-RING
THERMOSTAT
Install with pin up.
WATER PUMP INLET PIPE
O-RING

Thermostat Testing

Replace thermostat if it is open at room temperature.

To test a closed thermostat:

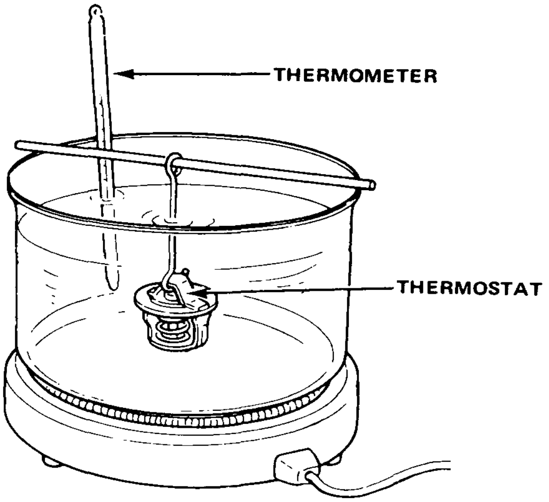
1. Suspend the thermostat in a container of water as shown.
2. Heat the water and check the temperature with a thermometer. Check the temperature at which the thermostat first opens and at full lift.

   CAUTION: Do not let thermometer touch bottom of hot container.

3. Measure lift height of thermostat when fully open.

STANDARD THERMOSTAT

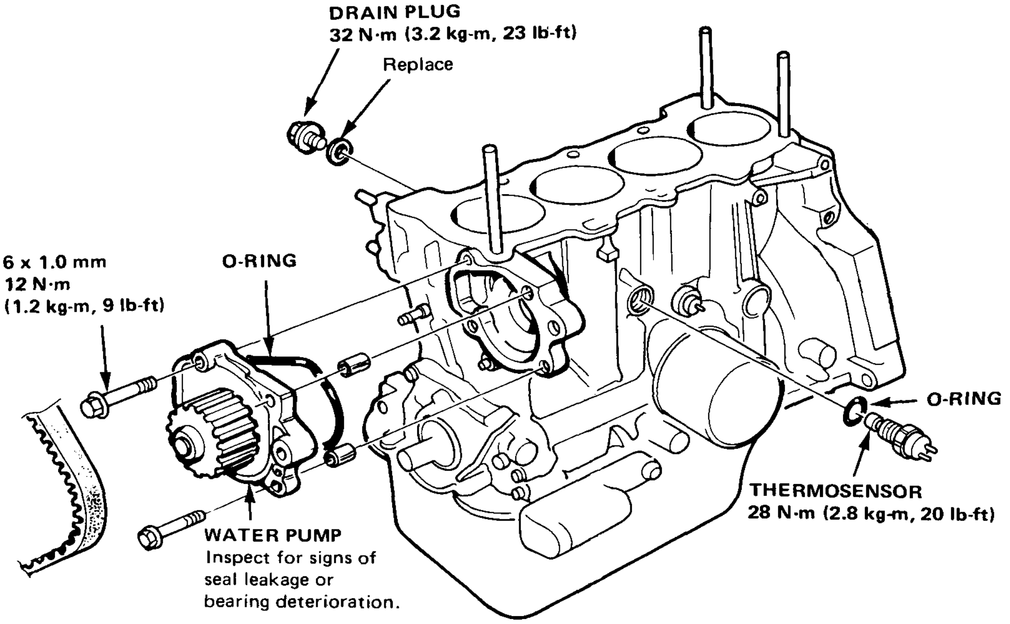
Lift height:	**8 mm (0.32 in.)**
Starts opening:	**76–80°C (169–176°F)**
Fully open:	**91°C (196°F)**


THERMOMETER
THERMOSTAT

Water Pump, Temperature Gauge

Replacement

NOTE: Use new gaskets and O-rings whenever reassembling.


DRAIN PLUG
32 N·m (3.2 kg-m, 23 lb-ft)
Replace
6 x 1.0 mm
12 N·m
(1.2 kg-m, 9 lb-ft)
O-RING
O-RING
THERMOSENSOR
28 N·m (2.8 kg-m, 20 lb-ft)
WATER PUMP
Inspect for signs of seal leakage or bearing deterioration.

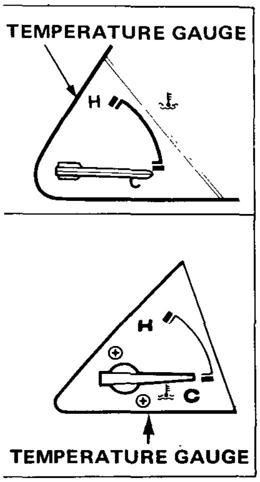
Temperature Gauge Testing

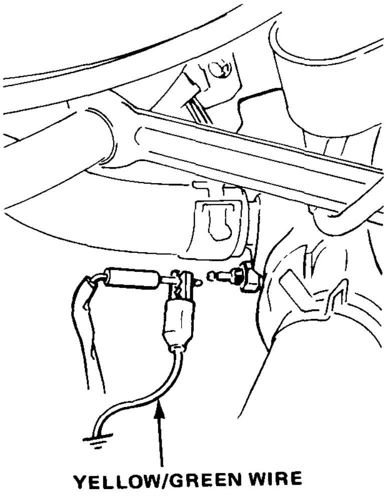
NOTE: If both the temperature gauge and fuel gauge malfunction simultaneously (and show H and F respectively), replace the fuel/temp gauge assembly.

1. Disconnect the yellow/green wire from the temperature gauge sending unit and short it to ground.
2. Turn the ignition switch to ON.
3. The temperature gauge needle should move all the way to H.

   If not, check the fuse, wiring and connections; if all are OK, replace the gauge.

   CAUTION: Do not leave sending unit wire grounded for longer than a few seconds or temperature gauge will be damaged.
4. Turn ignition switch off.

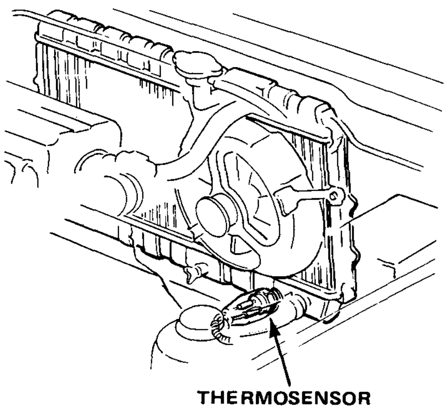

TEMPERATURE GAUGE
H
C
H
C
TEMPERATURE GAUGE


YELLOW/GREEN WIRE

Fan Thermosensor

Testing

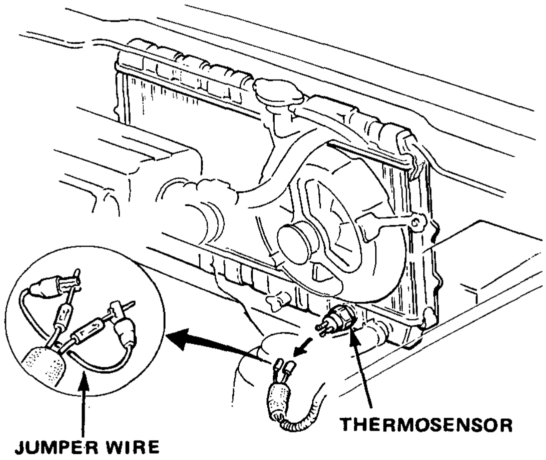
The cooling fan motor is actuated by a thermosensor located in the right tank of the radiator. Run the engine until the coolant temperature reaches 88.5–91.5° (191–197°F). The fan motor should start running.

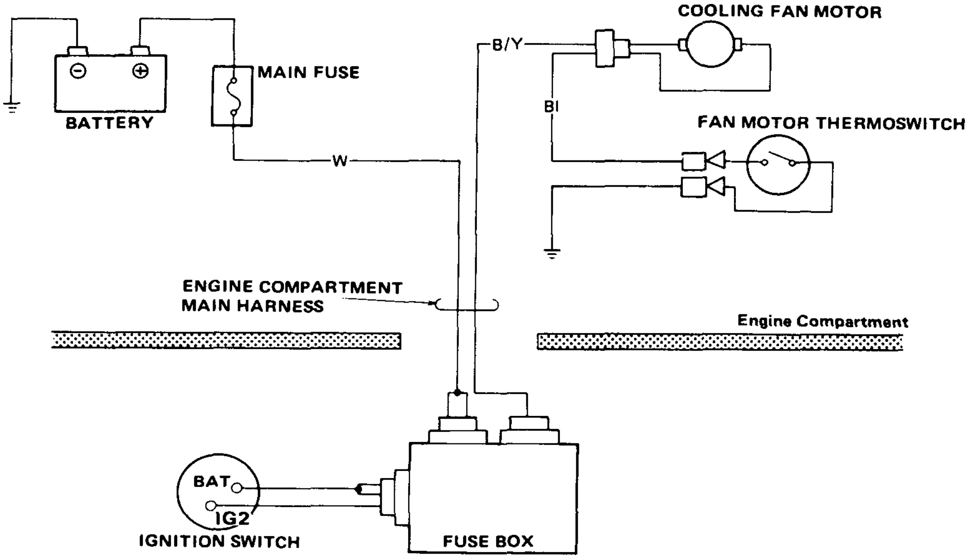

THERMOSENSOR

The fan motor should stop when the coolant temperature drops to 82–88°C (180–190°F).

If the fan motor does not start:

1. Disconnect the black and the blue wire leads from the cooling fan thermosensor and short the wires together.
2. Turn the ignition switch on.
3. **The cooling fan motor should start running.**
   - **If the motor runs, replace the cooling fan thermosensor and re-test.**
   - If the motor does not run, check for battery voltage from the blue wire lead (positive) to the black wire lead (negative) of the cooling fan motor.
     - If voltage is not available, check for a blown or faulty fuse, loose terminals and connectors, and open circuit.
     - If voltage is available, check for faulty cooling fan motor.

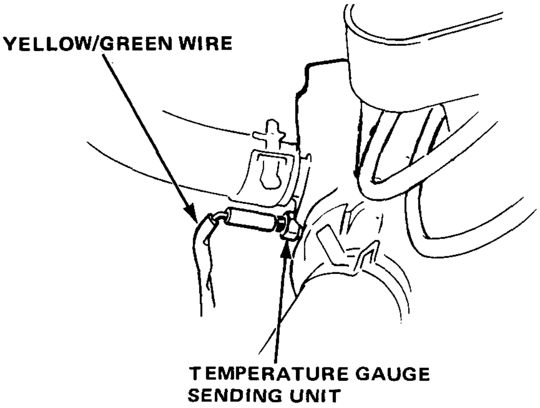

JUMPER WIRE
THERMOSENSOR


COOLING FAN MOTOR
B/Y
BI
FAN MOTOR THERMOSWITCH
MAIN FUSE
BATTERY
W
ENGINE COMPARTMENT MAIN HARNESS
Engine Compartment
BAT
IG2
IGNITION SWITCH
FUSE BOX

Temperature Gauge Sending Unit

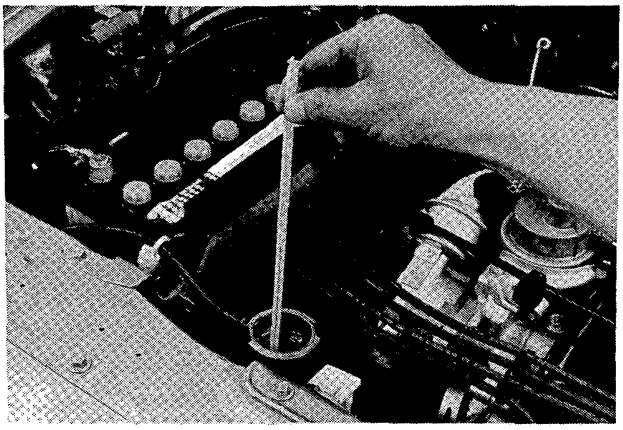
Testing

1. Disconnect the yellow/green wire from the sending unit.


YELLOW/GREEN WIRE
TEMPERATURE GAUGE SENDING UNIT

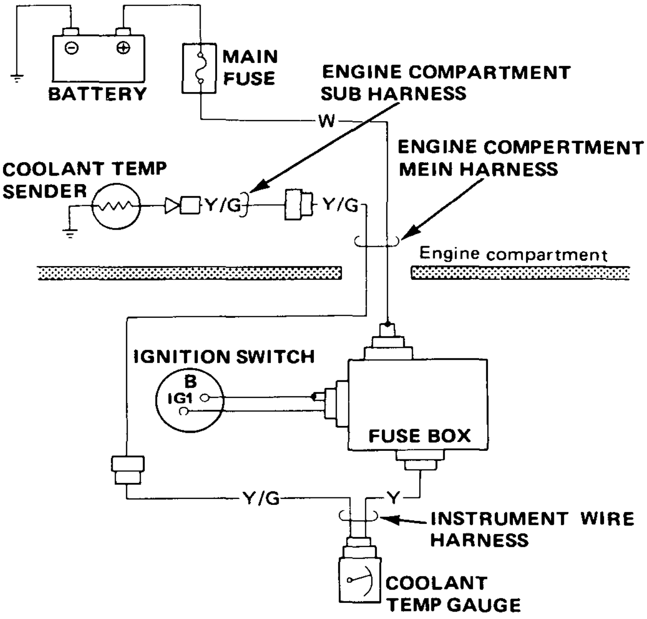
2. With the engine cold, use an ohmmeter to measure the resistance between the sending unit terminal and the engine.

3. Check the temperature of the coolant as shown.



4. Run the engine and measure the change in resistance with engine at operating temperature.

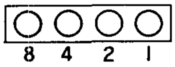
Temperature	50°C (122°F)	80°C (176°F)
Resistance (ohms)	154 +22 −20	52 +4.9 −4.4


BATTERY
MAIN FUSE
ENGINE COMPARTMENT SUB HARNESS
W
COOLANT TEMP SENDER
Y/G
Y/G
ENGINE COMPERTMENT MEIN HARNESS
Engine compartment
IGNITION SWITCH
B
IG1
FUSE BOX
Y/G
Y
INSTRUMENT WIRE HARNESS
COOLANT TEMP GAUGE

Preparation of Work

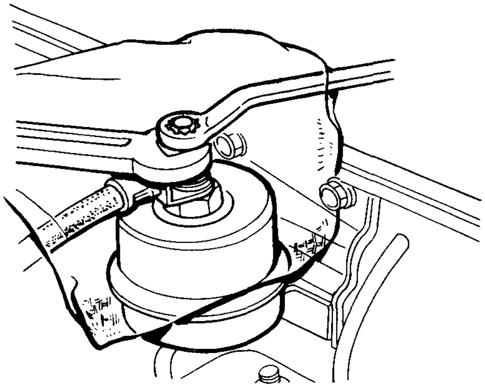
Special Caution Items For This Section

1. Troubleshooting for PGM-F1
   - First, check the self-diagnosis lamps on the control unit.

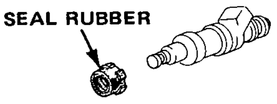


   - Be sure to turn the ignition switch OFF before disconnecting or connecting the coupler.
   - In case there is some abnormality and yet the self-diagnosis lamp is not lighted, carry out the inspection by following the numerical order of the self-diagnosis lamp indication given in the troubleshooting table. (Page, 11-6 to 8)
   - After the completion of any inspection or repair work for PGM-FI system, be sure to leave the (—) terminal of the battery disconnected for ten seconds or more to reset the control unit.

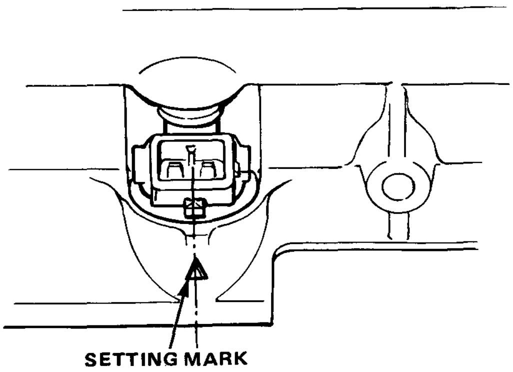
2. Fuel Line Servicing
   - Relieve fuel pressure by loosening the service bolt provided on the top of the fuel filter before disconnecting a fuel hose or a fuel pipe. (Page 11-25)



   - Be sure to replace washers, O-rings, and seal rubbers with new ones when servicing fuel line parts.



   - When assembling the flare joint of the high-pressure fuel line, clean the joint and coat with new engine oil.
   - When installing an injector, check the angle of the coupler. The center line of the coupler should align with the setting mark on the injector holder.

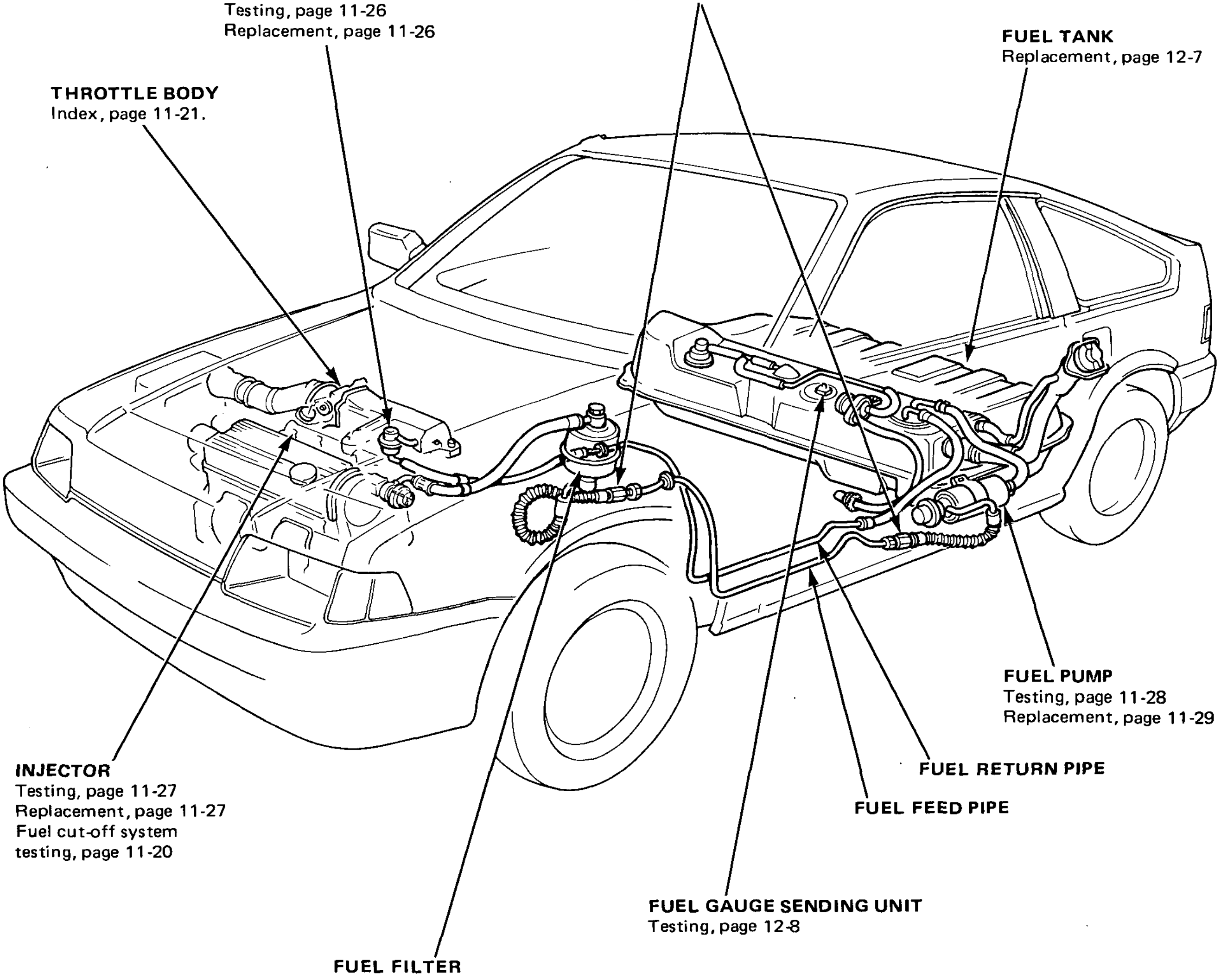


3. Inspection for fuel leakage
   - After assembling fuel line parts, turn ON the ignition switch (do not operate the starter) so that the fuel pump is operated for approximately two seconds and the fuel is pressurized. Repeat this operation two or three times and check whether any fuel leakage has occurred in any of the various points in the fuel line.
4. Installation of an amateur radio

   Care has been taken for the PGM-FI control unit (computer) and its wiring to prevent erroneous operation from external interference, but erroneous operation of the computer may be caused by entry of extremely strong radio waves. Attention must be paid to the following items to prevent erroneous operation of the computer.
   - The antenna and the body of the radio must be at least 200 mm (7.9 in.) away from the computer. (The computer installation position is under the right side seat.)
   - Do not lead the antenna feeder and the coaxial cable over a long distance parallel to the wiring, and when crossing with the wiring is required, execute crossing at a right angle.
   - Do not install a radio with a large output (max. 10 W).

PGM-FI System

Index



When assembling the flare joint of the high pressure fuel line, clean the joint and coat with new engine oil.

PRESSURE REGULATOR
Testing, page 11-26
Replacement, page 11-26

THROTTLE BODY
Index, page 11-21.

FUEL TANK
Replacement, page 12-7

FUEL PUMP
Testing, page 11-28
Replacement, page 11-29

FUEL RETURN PIPE

FUEL FEED PIPE

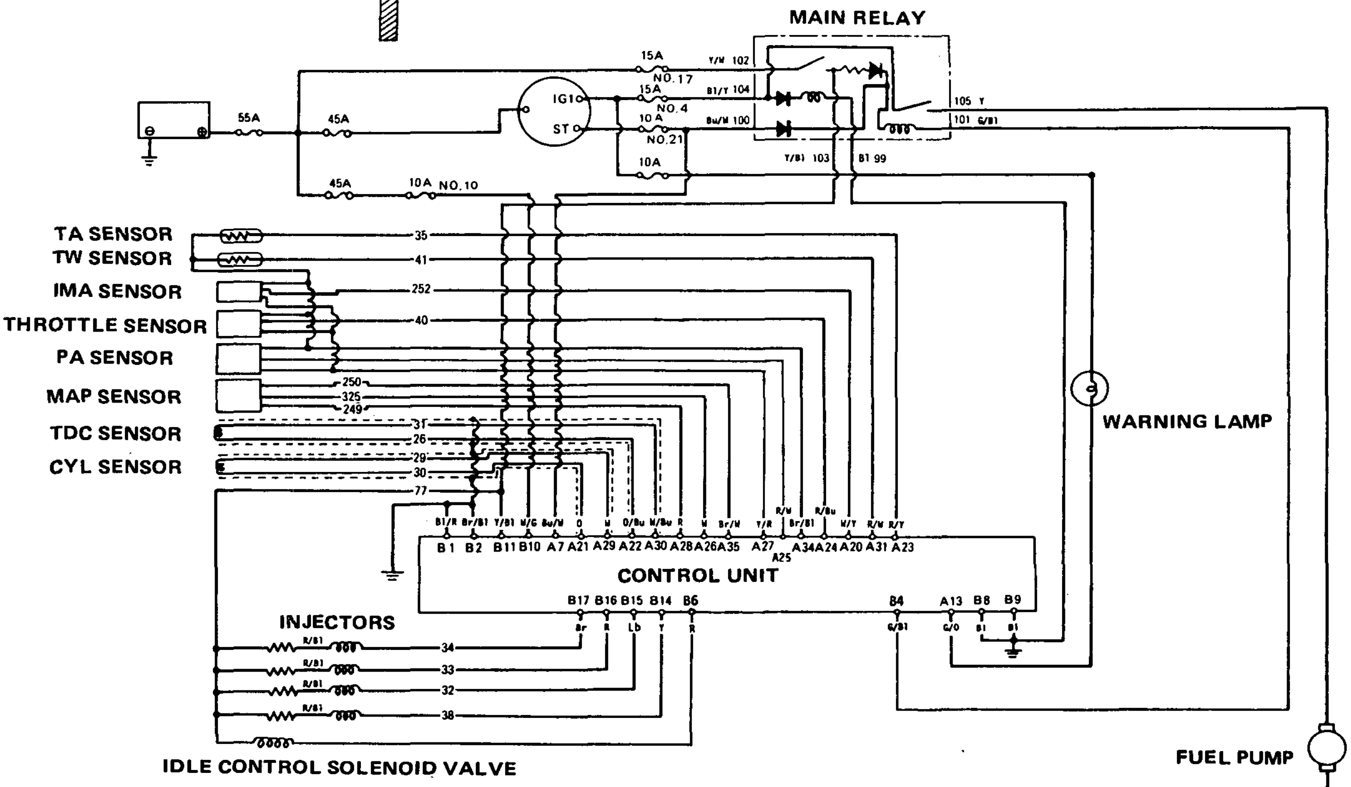
INJECTOR
Testing, page 11-27
Replacement, page 11-27
Fuel cut-off system
testing, page 11-20

FUEL GAUGE SENDING UNIT
Testing, page 12-8

FUEL FILTER
Replacement, page 11-26
Fuel pressure relief method, page 11-25

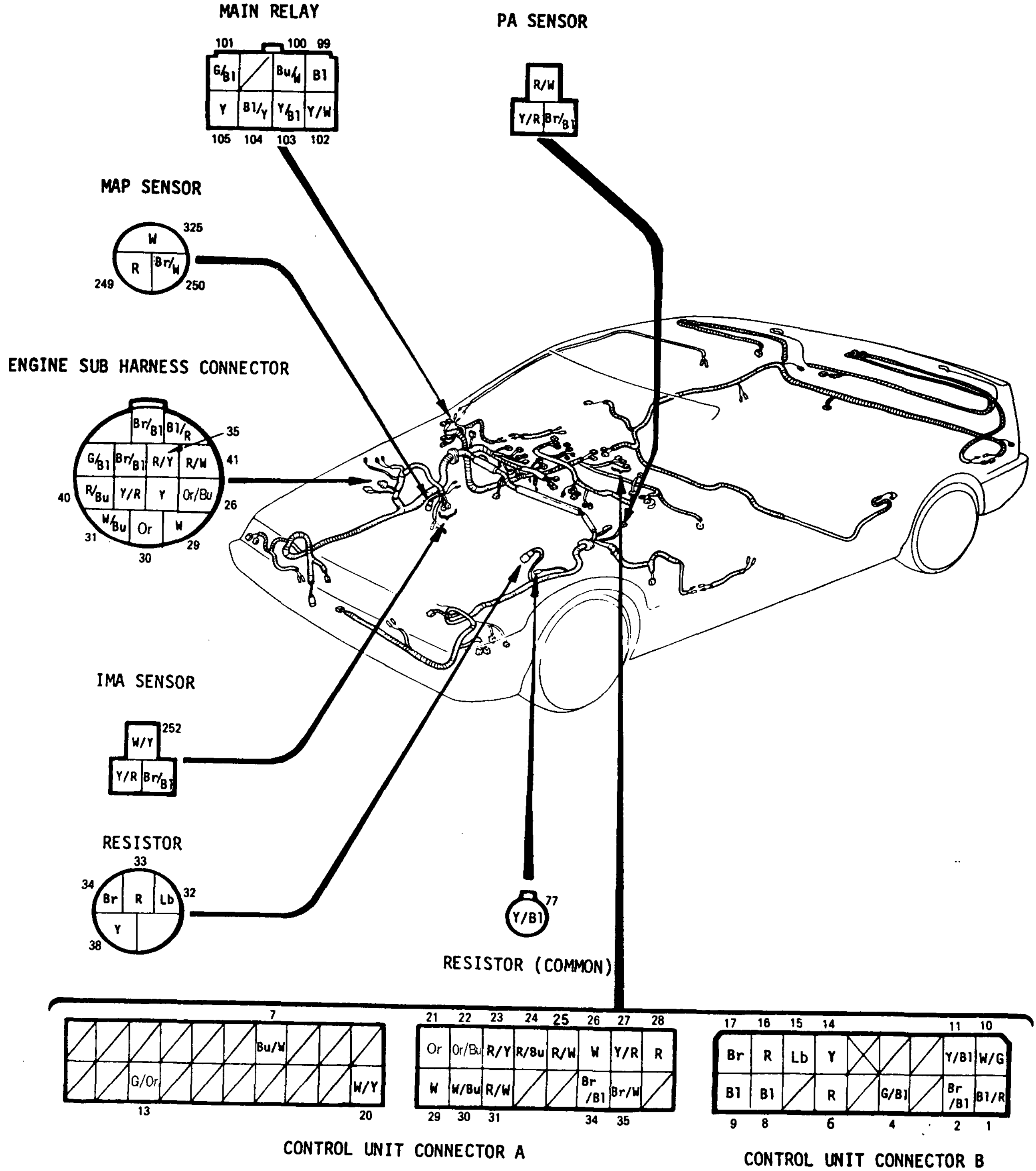
PGM-FI System

Wiring Diagram


MAIN RELAY
55A
45A
45A
10A NO.10
15A NO.17
15A NO.4
10 A NO.21
10A
IG1
ST
Y/W 102
Bl/Y 104
Bu/W 100
Y/Bl 103
Bl 99
105 Y
101 G/Bl
TA SENSOR
TW SENSOR
IMA SENSOR
THROTTLE SENSOR
PA SENSOR
MAP SENSOR
TDC SENSOR
CYL SENSOR
35
41
252
40
250
325
249
31
26
29
30
77
Bl/R Br/Bl Y/Bl W/G Bu/W O W O/Bu W/Bu R W Br/W Y/R R/W Br/Bl R/Bu W/Y R/W R/Y
B1 B2 B11 B10 A7 A21 A29 A22 A30 A28 A26 A35 A27 A25 A34 A24 A20 A31 A23
CONTROL UNIT
B17 B16 B15 B14 B6
Br R Lb Y R
B4 A13 B8 B9
G/Bl G/O Bl Bl
INJECTORS
R/Bl
34
33
32
38
IDLE CONTROL SOLENOID VALVE
WARNING LAMP
FUEL PUMP

Wire Arrangement in Connectors

NOTE: THE ILLUSTRATED WIRE ARRANGEMENT IS THE VIEW FROM THE WIRE SIDE OF THE CONNECTOR.


MAIN RELAY
101 100 99
G/Bl Bu/W Bl
Y Bl/Y Y/Bl Y/W
105 104 103 102
PA SENSOR
R/W
Y/R Br/Bl
MAP SENSOR
325
W
R Br/W
249 250
ENGINE SUB HARNESS CONNECTOR
Br/Bl Bl/R
35
G/Bl Br/Bl R/Y R/W
41
40
R/Bu Y/R Y Or/Bu
26
W/Bu Or W
31 29
30
IMA SENSOR
252
W/Y
Y/R Br/Bl
RESISTOR
33
34
Br R Lb
32
Y
38
77
Y/Bl
RESISTOR (COMMON)
7
Bu/W
G/Or W/Y
13 20
21 22 23 24 25 26 27 28
Or Or/Bu R/Y R/Bu R/W W Y/R R
W W/Bu R/W Br/Bl Br/W
29 30 31 34 35
CONTROL UNIT CONNECTOR A
17 16 15 14 11 10
Br R Lb Y Y/Bl W/G
Bl Bl R G/Bl Br/Bl Bl/R
9 8 6 4 2 1
CONTROL UNIT CONNECTOR B

PGM-FI System

Troubleshooting Chart

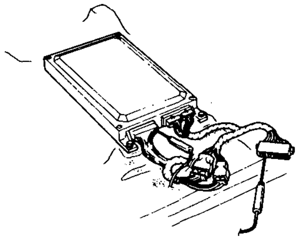
CAUSAL PART SYMPTOM		ENGINE	AIR CLEANER	BLOW-BY SYSTEM	IGNITION	ELC. POWER SOURCE	CONTROL UNIT	INJECTOR	FUEL PUMP	FUEL LINE
DIFFICULT TO START ENGINE	WHEN COLD				DISTRIB'TR /IG COIL FAILURE	BLOWN FUSE MAIN RELAY FAILURE	CONTROL UNIT FAILURE	OPEN/SHORT CIRCUIT DAMAGED INJECTOR	PUMP/MAIN RELAY FAILURE POOR GND	FROZEN FUEL LINE CLOGGED FILTER
	AT RESTARTING WHEN HOT						↑	STUCK INJECTOR CURRENT LEAKAGE VAPOR LOCK		VAPOR LOCK
IRREGULAR IDLING	WHEN COLD	LACK OF TAPPET CL. EXCESSIVE PLUG GAP			DISTRIB'TR /IG COIL FAILURE DISCONN'TD VAC'M TUBE		↑	OPEN/SHORT CIRCUIT EXCESSIVE CONTACT RESISTANCE		
	AFTER WARMING UP	↑		CLOG'D TUBE /PCV VALVE STUCK PCV VALVE	↑		↑	↑		
	AFTER RESTARTING WHEN HOT	↑		↑	↑		↑	↑ VAPOR LOCK		VAPOR LOCK
	RPM TOO HIGH			↑						
TEND TO STALL	WHILE WARMING UP						CONTROL UNIT FAILURE	OPEN/SHORT CIRCUIT	PUMP/MAIN RELAY FAILURE POOR GND	INCORRECT FUEL PRESSURE CLOGGED FILTER
	AFTER WARMING UP	LACK OF TAPPET CL. EXCESSIVE PLUG GAP		CLOG'D TUBE /PCV VALVE STUCK PCV VALVE			↑	↑		↑
POOR PERFORMANCE	POOR DRIVABILITY LARGE FUEL CONSUMPT'N	INCORRECT TAPPET ADJUSTMENT	LARGE SUCTION RESISTANCE		DISTRIB'TR FAILURE DISCONN'TD VAC'M TUBE		↑	OPEN/SHORT CIRCUIT EXCESSIVE CONTACT RESISTANCE		↑
	AFTER BURN	LACK OF TAPPET CL.			DISCONN'TD /TORN VAC'M TUBE		↑			
	BACK FIRE				↑		↑	WRONG WIRING EXCESSIVE CONTACT RESISTANCE	PUMP/MAIN RELAY FAILURE POOR GND	INCORRECT FUEL PRESSURE CLOGGED FILTER
	KNOCKING						↑	↑		↑
	LACK OF POWER AT LOW RPM	INCORRECT TAPPET CL. LACK OF COMPRESS'N			DISTRIB'TR FAILURE DISCONN'TD VAC'M TUBE		↑	↑		↑
	LACK OF POWER AT MID RPM	↑	LARGE SUCTION RESISTANCE		↑		↑	↑		↑
	LACK OF POWER AT HIGH RPM		↑		DISTRIB'TR FAILURE		↑			
WARNING LAMP TURNS ON	PGM-FI LAMP						ON			
	SELF DIAGNOSIS LAMP									

THROTTLE BODY	TDC/CYL SENSOR	MAP SENSOR	PA SENSOR	TW SENSOR	TRHROTTLE SENSOR	TA SENSOR	IMA SENSOR	IDLE CONTROL SOL'ND	IMPORTANT NOTES
STUCK AIR BY-PASS VALVE	OPEN/SHORT CIRCUIT SENSOR FAILURE			OPEN/SHORT CIRCUIT SENSOR FAILURE					CHECK FUEL PUMP AND INJECTOR, POSSIBLE TO START BY OPENING THROTTLE? (STUCK AIR BY-PASS VALVE)
	↑								VAPOR LOCK (FUEL LINE) POSSIBLE TO START BY OPENING THROTTLE? (VAPOR LOCK IN INJECTOR)
STUCK AIR BY-PASS VALVE				OPEN/SHORT CIRCUIT SENSOR FAILURE					CHECK IGNITION SPARK AND INJECTORS
STUCK AIR BY-PASS VALVE	OPEN/SHORT CIRCUIT SENSOR FAILURE	OPEN/SHORT CIRCUIT SENSOR FAILURE						SOLENOID VALVE REMAINS CLOSED	
	↑	↑						↑	CHECK VAPOR LOCK IN FUEL LINE PCV VALVE CLOGGED?
STUCK AIR BY-PASS VALVE		↑						SOLENOID VALVE REMAINS OPEN	CHECK FAST IDLE VALVE
				OPEN/SHORT CIRCUIT SENSOR FAILURE		OPEN/SHORT CIRCUIT SENSOR FAILURE			CHECK FAST IDLE VALVE CHECK TW SENSOR
	OPEN/SHORT CIRCUIT SENSOR FAILURE								IDLING O.K.? FUEL CUT O.K.?
	↑	OPEN/SHORT CIRCUIT SENSOR/TUBING FAILURE	OPEN/SHORT CIRCUIT SENSOR FAILURE	OPEN/SHORT CIRCUIT SENSOR FAILURE	OPEN/SHORT CIRCUIT SENSOR FAILURE	OPEN/SHORT CIRCUIT SENSOR FAILURE	OPEN/SHORT CIRCUIT SENSOR FAILURE	IDLE CONTROL SYSTEM FAILURE	
		↑		↑	↑				IGNITION TIMING O.K.? FUEL CUT O.K.?
		↑		↑					IGNITION TIMING MAP SENSOR INJECTORS O.K.?
				↑	OPEN/SHORT CIRCUIT SENSOR FAILURE				IGNITION TIMING O.K.?
				↑	↑				IGNITION TIMING (VAC. ADVANCER TUBE) INJECTORS
		OPEN/SHORT CIRCUIT SENSOR/TUBING FAILURE		↑	↑				IGNITION TIMING
SECONDARY VALVE NOT OPENING FULLY		↑							SECONDARY THROTTLE VALVE OPENS FULLY? MAP SENSOR THROTTLE SENSOR
			ON			ON	ON		
	TDC ☼○○○ CYL ☼○○☼	○○☼☼ ○☼○☼	☼☼○☼	○☼☼○	○☼☼☼	☼○☼○	☼○☼☼		

No.	LAMP PATTERN	PGM-FI LAMP	FAILURE ATTRIBUTABLE TO:	SYMPTOM
0	○○○○	☼	* Control Unit * Short-circuit in combination meter	* Engine cannot be started * No noticeable symptom
3	○○☼☼		* MAP sensor * Disconnected MAP sensor coupler * Open/shorted MAP sensor wiring	* Poor pick-up response of engine * Idle speed lowers * Engine tend to stall
5	○☼○☼		* Disconnected MAP sensor vacuum tube	* Spark plugs tend to foul * Idle speed lowers * Engine tend to stall
6	○☼☼○		* TW sensor * Disconnected TW sensor coupler * Open circuit in TW sensor wiring	* Difficult to start when cold * Idle speed too high when warming-up
7	○☼☼☼		* Throttle sensor * Disconnected throttle sensor coupler * Open/Shorted throttle sensor wiring	* Poor pick-up response when cold * Poor quick revving response * Starting car not smooth when cold
8	☼○○○		* TDC sensor * Open/shorted wiring of the sensor * Disconnected coupler of the sensor	* Irregular idle speed * Poor pick-up response
9	☼○○☼		* CYL sensor * Open/Shorted wiring of the sensor * Disconnected coupler of the sensor	* Irregular idle speed * Poor pick-up response
10	☼○☼○	☼	* TA sensor * Disconnected TA sensor coupler * Open-circuit in TA sensor wiring	* Irregular idle speed when cold
11	☼○☼☼	☼	* IMA sensor * Disconnected IMA sensor coupler * Open/shorted IMA sensor wiring	* No particular symptom noticeable
13	☼☼○☼	☼	* PA sensor * Disconnected PA sensor coupler * Open/shorted PA sensor wiring	* Poor performance at high altitude

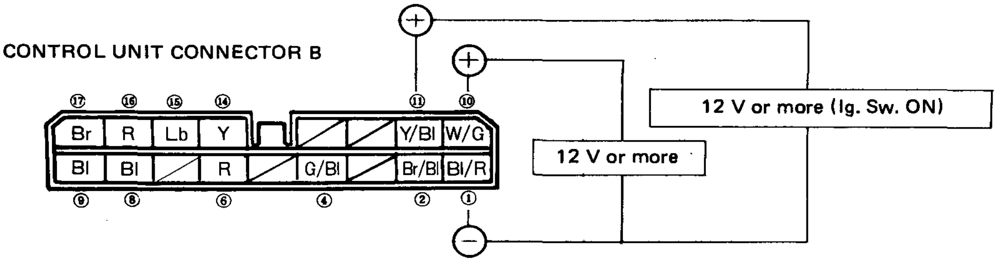
Notes:

1. The self-diagnosis lamps are located in on the control unit which is attached under the right hand side front seat.
2. The PGM-FI lamp (warning lamp) is provided in the combination meter.
3. To measure voltage, use the digital circuit tester (No. 07411–0020000) or equivalent. (DC Voltage accuracy is 0.2% at 2,000 m V range)
4. To check the control system, use the special tool, System Checker Harness (No. 07999–PE70000).



Troubleshooting

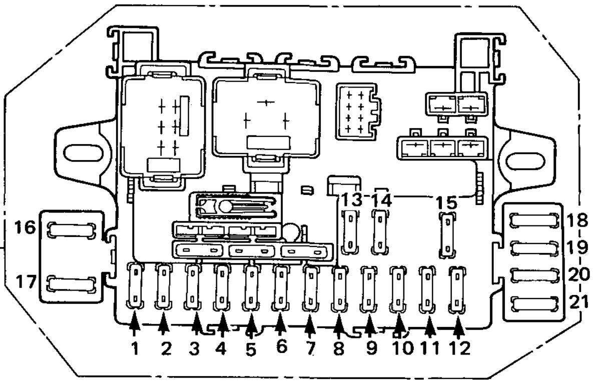
POWER SUPPLY CHECK


CONTROL UNIT CONNECTOR B
⑰ ⑯ ⑮ ⑭ ⑪ ⑩
Br
R
Lb
Y
Y/Bl
W/G
Bl
Bl
R
G/Bl
Br/Bl
Bl/R
⑨ ⑧ ⑥ ④ ② ①
12 V or more (Ig. Sw. ON)
12 V or more

12 V or more

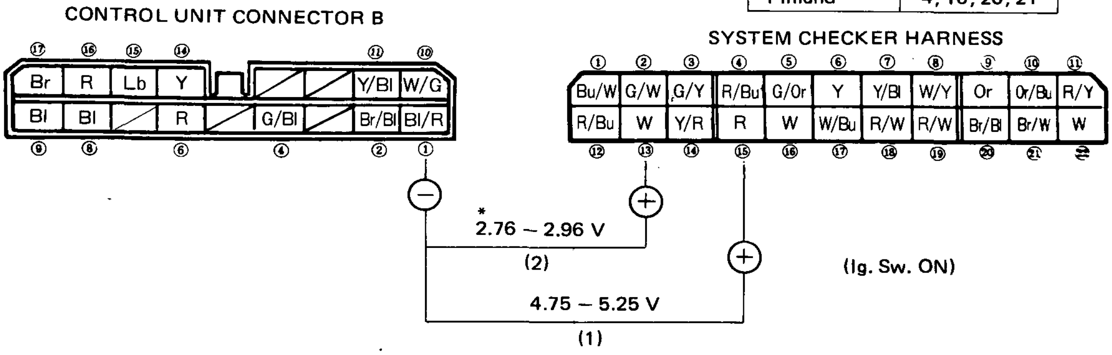
O.K.
- CONTROL UNIT
- CONNECTORS

NOT
- FUSES
- WIRING
- BATTERY


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21

Model	Fuse No.
KF, KG, KX KB, KW	4, 10, 17, 21
KE	4, 10, 19, 20
KS	4, 10, 17, 20
Finland	4, 10, 20, 21

○ ○ ☼ ☼ **(MAP SENSOR)**


CONTROL UNIT CONNECTOR B
⑰ ⑯ ⑮ ⑭ ⑪ ⑩
Br
R
Lb
Y
Y/Bl
W/G
Bl
Bl
R
G/Bl
Br/Bl
Bl/R
⑨ ⑧ ⑥ ④ ② ①
SYSTEM CHECKER HARNESS
① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪
Bu/W
G/W
G/Y
R/Bu
G/Or
Y
Y/Bl
W/Y
Or
Or/Bu
R/Y
R/Bu
W
Y/R
R
W
W/Bu
R/W
R/W
Br/Bl
Br/W
W
⑫ ⑬ ⑭ ⑮ ⑯ ⑰ ⑱ ⑲ ⑳ ㉑ ㉒
*2.76 – 2.96 V
(2)
4.75 – 5.25 V
(1)
(Ig. Sw. ON)

(1) 4.75 – 5.25 V — O.K. — (2)

NOT — CONTROL UNIT

(2) *2.76 – 2.96 V — O.K. — CONTROL UNIT

NOT
- WIRING
- MAP SENSOR (testing, page 11-13)

*The voltage drops as the altitude increases.
(0.3 V for every 1,000 m)

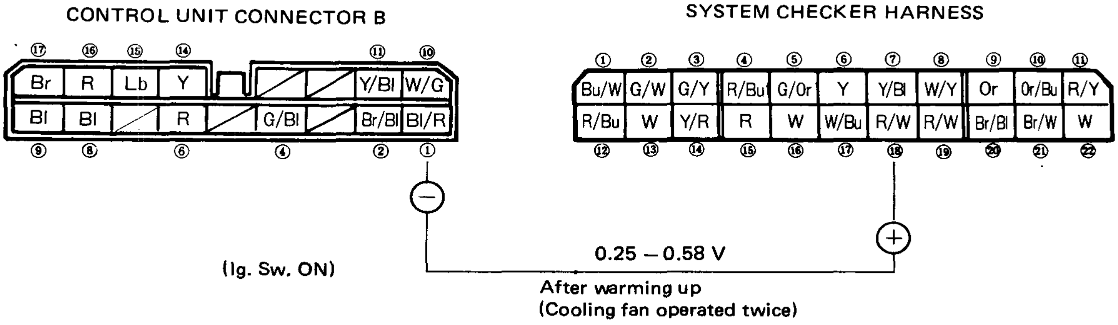
(cont'd)

○ ☼ ○ ☼ **(MAP SENSOR)**

Check vacuum line from throttle body to MAP sensor. If it is O.K., carry out the same tests as for ○ ○ ☼ ☼

Troubleshooting (cont'd)

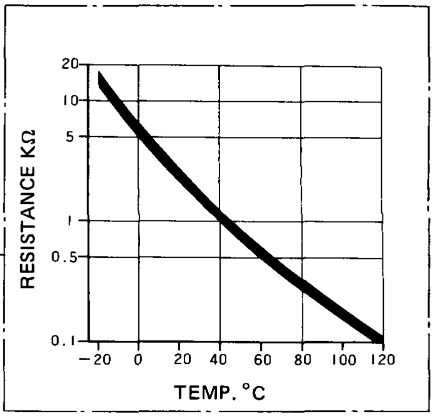
○☼☼○ **(TW SENSOR)**


CONTROL UNIT CONNECTOR B
⑰ Br
⑯ R
⑮ Lb
⑭ Y
⑪ Y/Bl
⑩ W/G
⑨ Bl
⑧ Bl
⑥ R
④ G/Bl
② Br/Bl
① Bl/R
SYSTEM CHECKER HARNESS
① Bu/W
② G/W
③ G/Y
④ R/Bu
⑤ G/Or
⑥ Y
⑦ Y/Bl
⑧ W/Y
⑨ Or
⑩ Or/Bu
⑪ R/Y
⑫ R/Bu
⑬ W
⑭ Y/R
⑮ R
⑯ W
⑰ W/Bu
⑱ R/W
⑲ R/W
⑳ Br/Bl
㉑ Br/W
㉒ W
−
+
(Ig. Sw. ON)
0.25 – 0.58 V
After warming up
(Cooling fan operated twice)

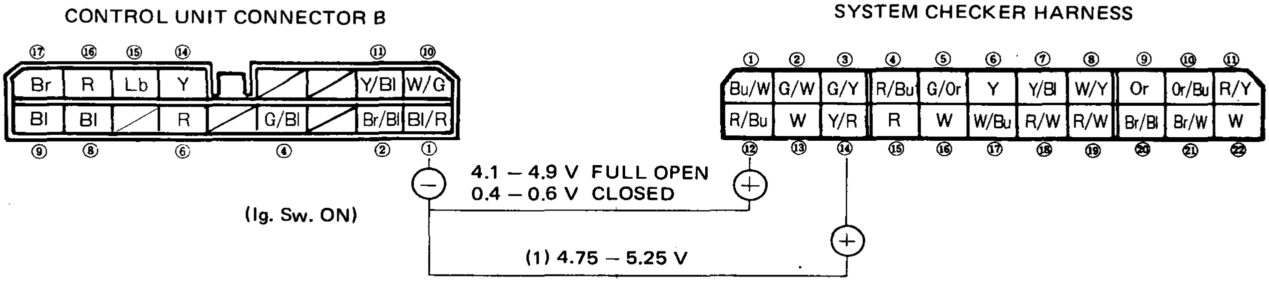
0.25 – 0.58 V — O.K. — CONTROL UNIT

NOT — WIRING

NOT — TW. SENSOR (Testing, page 11-14)



○☼☼☼ **(THROTTLE SENSOR)**


CONTROL UNIT CONNECTOR B
⑰ Br
⑯ R
⑮ Lb
⑭ Y
⑪ Y/Bl
⑩ W/G
⑨ Bl
⑧ Bl
⑥ R
④ G/Bl
② Br/Bl
① Bl/R
SYSTEM CHECKER HARNESS
① Bu/W
② G/W
③ G/Y
④ R/Bu
⑤ G/Or
⑥ Y
⑦ Y/Bl
⑧ W/Y
⑨ Or
⑩ Or/Bu
⑪ R/Y
⑫ R/Bu
⑬ W
⑭ Y/R
⑮ R
⑯ W
⑰ W/Bu
⑱ R/W
⑲ R/W
⑳ Br/Bl
㉑ Br/W
㉒ W
−
+
+
(Ig. Sw. ON)
4.1 – 4.9 V FULL OPEN
0.4 – 0.6 V CLOSED
(1) 4.75 – 5.25 V

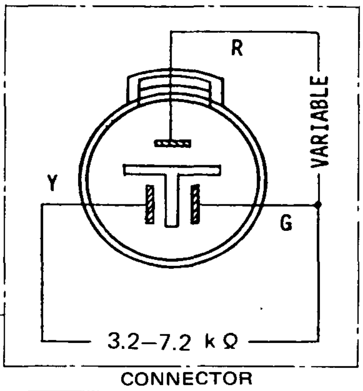
(1) 4.75 – 5.25 V — O.K. — (2)

NOT — CONTROL UNIT

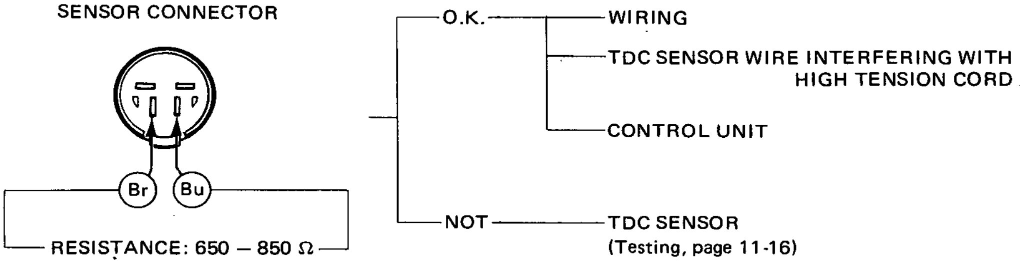
(2) 4.1 – 4.9 V FULL OPEN
0.4 – 0.6 V CLOSED — O.K. — CONTROL UNIT

NOT — WIRING

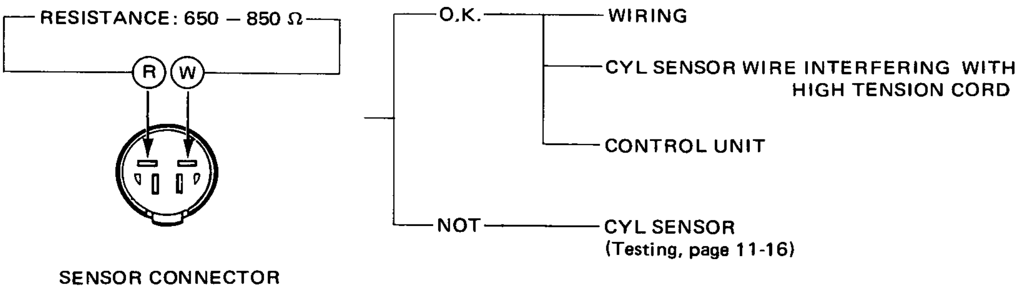
NOT — THROTTLE SENSOR (Testing, page 11–15)


R
VARIABLE
Y
G
3.2–7.2 kΩ
CONNECTOR

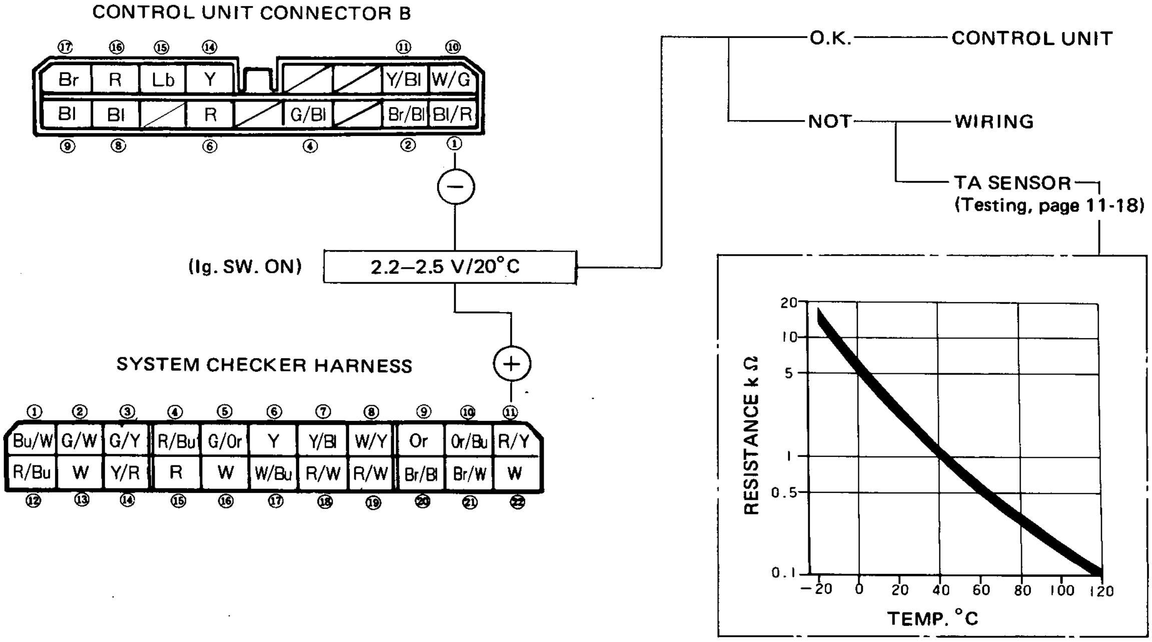
☼○○○ (TDC SENSOR)


SENSOR CONNECTOR
Br
Bu
RESISTANCE: 650 – 850 Ω
O.K.
WIRING
TDC SENSOR WIRE INTERFERING WITH HIGH TENSION CORD
CONTROL UNIT
NOT
TDC SENSOR
(Testing, page 11-16)

☼○○☼ (CYL SENSOR)


RESISTANCE: 650 – 850 Ω
R
W
SENSOR CONNECTOR
O.K.
WIRING
CYL SENSOR WIRE INTERFERING WITH HIGH TENSION CORD
CONTROL UNIT
NOT
CYL SENSOR
(Testing, page 11-16)

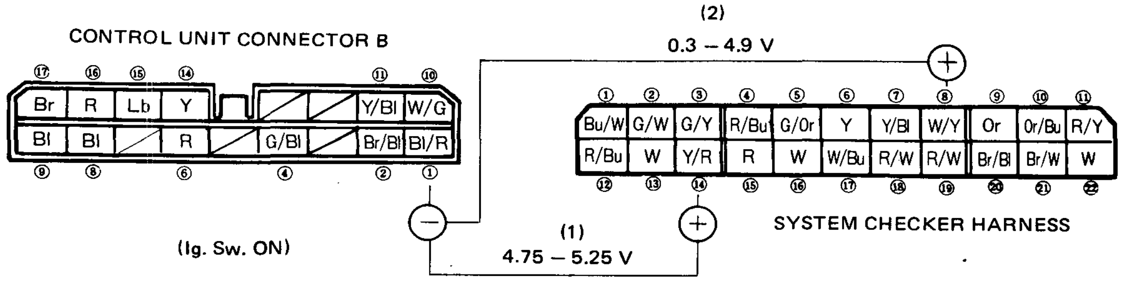
☼○☼○ (TA SENSOR)

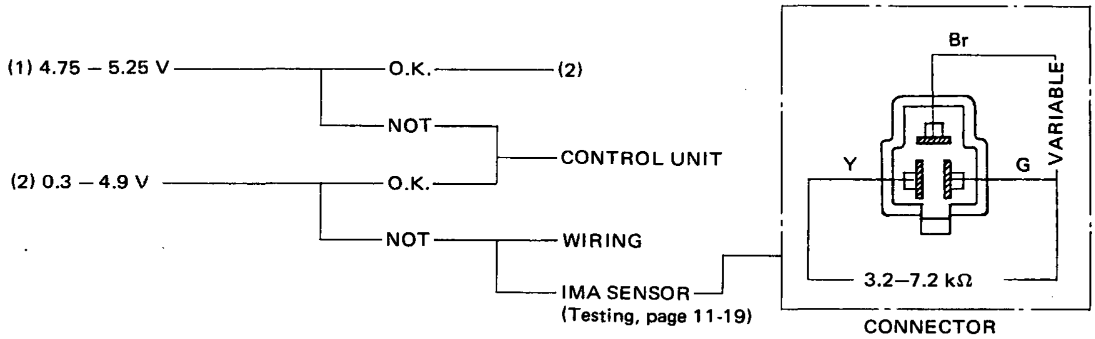

CONTROL UNIT CONNECTOR B
⑰ Br
⑯ R
⑮ Lb
⑭ Y
⑪ Y/Bl
⑩ W/G
⑨ Bl
⑧ Bl
⑥ R
④ G/Bl
② Br/Bl
① Bl/R
−
(Ig. SW. ON)
2.2–2.5 V/20°C
+
SYSTEM CHECKER HARNESS
① Bu/W
② G/W
③ G/Y
④ R/Bu
⑤ G/Or
⑥ Y
⑦ Y/Bl
⑧ W/Y
⑨ Or
⑩ Or/Bu
⑪ R/Y
⑫ R/Bu
⑬ W
⑭ Y/R
⑮ R
⑯ W
⑰ W/Bu
⑱ R/W
⑲ R/W
⑳ Br/Bl
㉑ Br/W
㉒ W
O.K.
CONTROL UNIT
NOT
WIRING
TA SENSOR
(Testing, page 11-18)
RESISTANCE k Ω
20
10
5
1
0.5
0.1
−20
0
20
40
60
80
100
120
TEMP. °C

(cont'd)

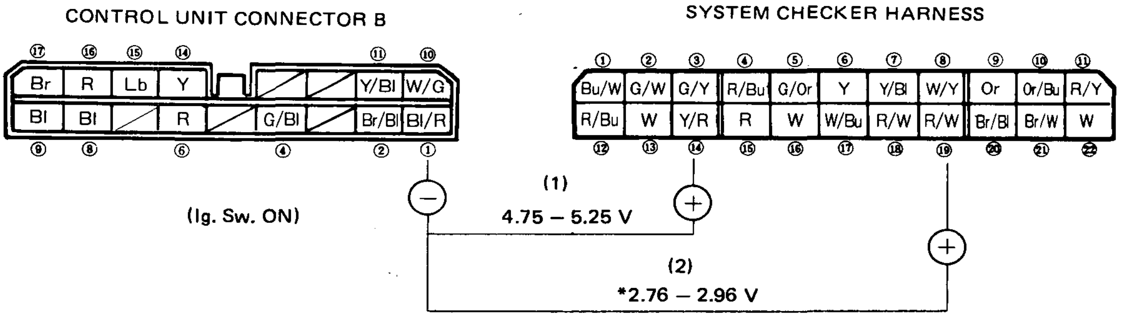
Troubleshooting (cont'd)

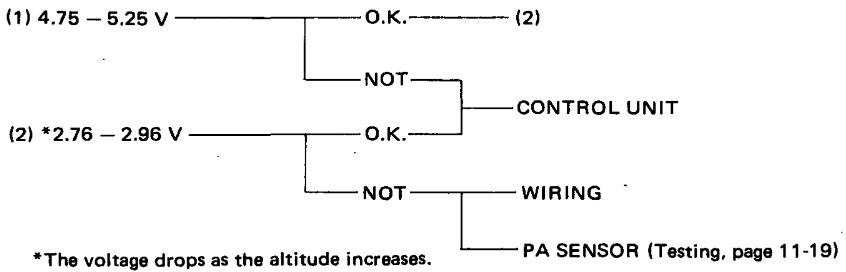
☼○☼☼ (IMA SENSOR)


CONTROL UNIT CONNECTOR B
⑰ ⑯ ⑮ ⑭ ⑪ ⑩
Br R Lb Y Y/Bl W/G
Bl Bl R G/Bl Br/Bl Bl/R
⑨ ⑧ ⑥ ④ ② ①
(2)
0.3 – 4.9 V
SYSTEM CHECKER HARNESS
Bu/W G/W G/Y R/Bu G/Or Y Y/Bl W/Y Or Or/Bu R/Y
R/Bu W Y/R R W W/Bu R/W R/W Br/Bl Br/W W
(Ig. Sw. ON)
(1)
4.75 – 5.25 V


(1) 4.75 – 5.25 V
O.K.
(2)
NOT
CONTROL UNIT
(2) 0.3 – 4.9 V
O.K.
NOT
WIRING
IMA SENSOR
(Testing, page 11-19)
Br
VARIABLE
Y
G
3.2–7.2 kΩ
CONNECTOR

☼☼○☼ (PA SENSOR)


CONTROL UNIT CONNECTOR B
⑰ ⑯ ⑮ ⑭ ⑪ ⑩
Br R Lb Y Y/Bl W/G
Bl Bl R G/Bl Br/Bl Bl/R
⑨ ⑧ ⑥ ④ ② ①
SYSTEM CHECKER HARNESS
Bu/W G/W G/Y R/Bu G/Or Y Y/Bl W/Y Or Or/Bu R/Y
R/Bu W Y/R R W W/Bu R/W R/W Br/Bl Br/W W
(Ig. Sw. ON)
(1)
4.75 – 5.25 V
(2)
*2.76 – 2.96 V


(1) 4.75 – 5.25 V
O.K.
(2)
NOT
CONTROL UNIT
(2) *2.76 – 2.96 V
O.K.
NOT
WIRING
PA SENSOR (Testing, page 11-19)

*The voltage drops as the altitude increases.
(0.3 V for every 1,000 m)

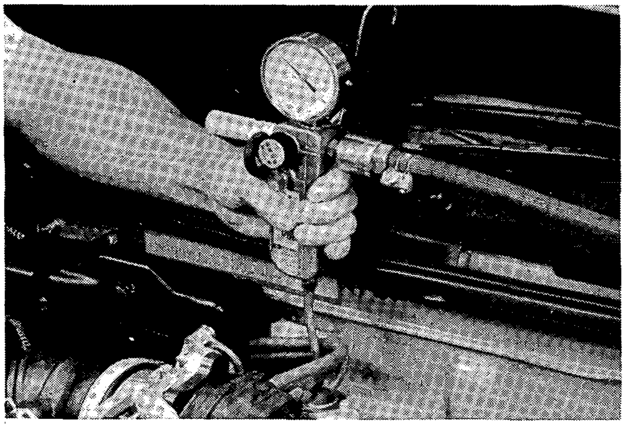
☼☼○○
☼☼☼○
☼☼☼☼ } **CONTROL UNIT**

MAP Sensor

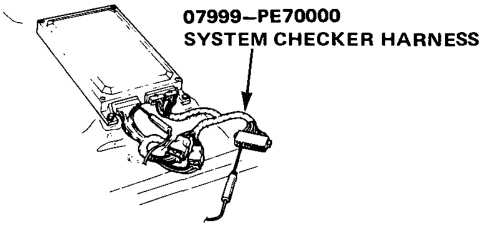
Testing

1. Disconnect the hose No. 21 from the throttle body to the MAP sensor in the control box, and plug the throttle body output port with a cap and connect a vacuum pump to the hose.

   NOTE: Use commercially available vacuum pump.



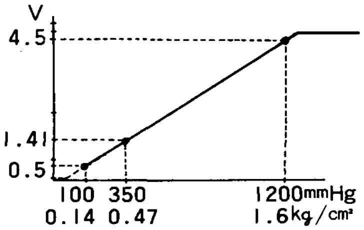
2. Disconnect the control unit connectors, and connect the special tool 'System Checker Harness' between the control unit and the wireharness connector.



3. Connect digital voltmeter positive probe to the terminal No. 13 of the system checker harness and connect negative probe to the terminal No. 1 of the control unit connector B. Turning the ignition switch ON, apply negative pressure by means of the vacuum pump, and check the change in output voltage.

SYSTEM CHECKER HARNESS

①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪
Bu/W	G/W	G/Y	R/Bu	G/Or	Y	Y/Bl	W/Y	Or	Or/Bu	R/Y
R/Bu	W	Y/R	R	W	W/Bu	R/W	R/W	Br/Bl	Br/W	W
⑫	⑬	⑭	⑮	⑯	⑰	⑱	⑲	⑳	㉑	㉒



Voltmeter should indicate voltage along with the chart above.

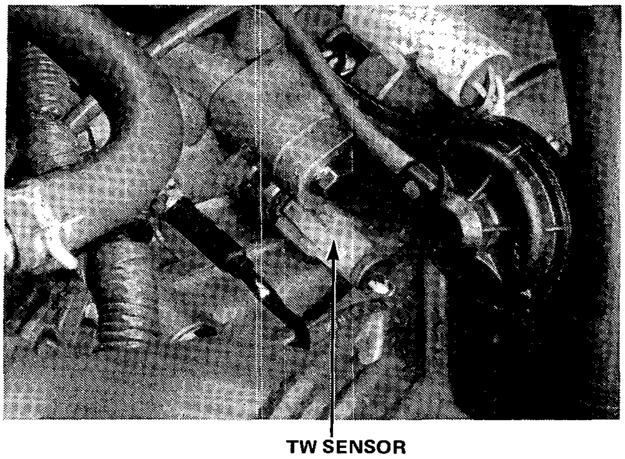
- If the voltage does not attain, check the hose and the wireharness.
- If the hose and the wireharness are OK, replace the MAP sensor.

NOTE: The voltage drops as the altitude increases (0.3 V for every 1,000 m)

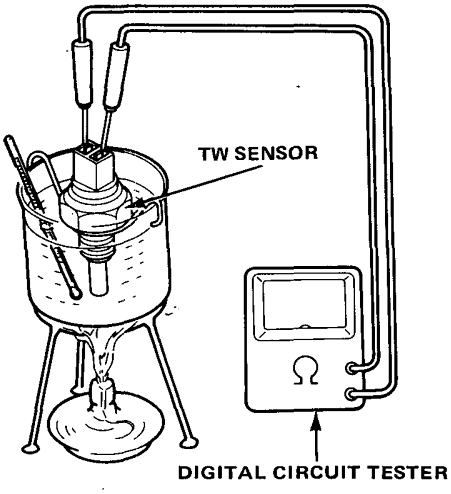
TW Sensor

Testing

1. Drain the coolant until its level is lower than the cylinder head.
2. Disconnect the connector and remove the TW sensor from the cylinder head.



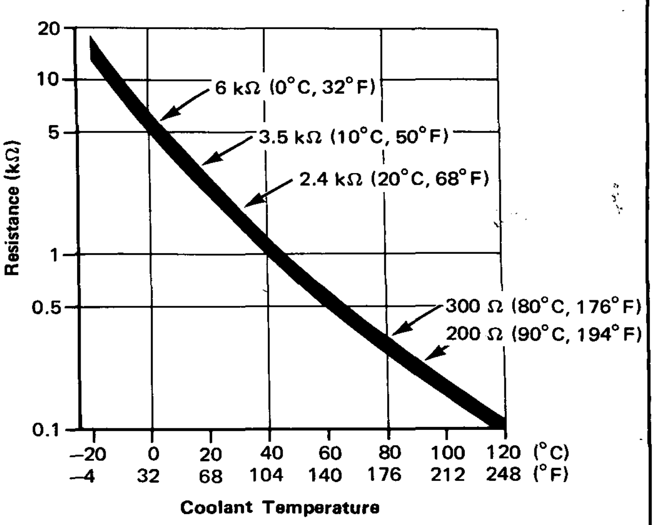
3. To test a TW sensor, suspend it in cold water and heat the water slowly.
4. Measure resistance between the terminals.



Resistance should be:
1–1.65 KΩ at 35°C (95°F)
0.25–0.36 KΩ at 80°C (176°F)

- If resistance is outside above ranges, replace TW sensor.

The chart below shows the change in resistance over a range of coolant temperatures.



NOTE: Don't let the TW sensor touch the bottom of the container.

Throttle Sensor

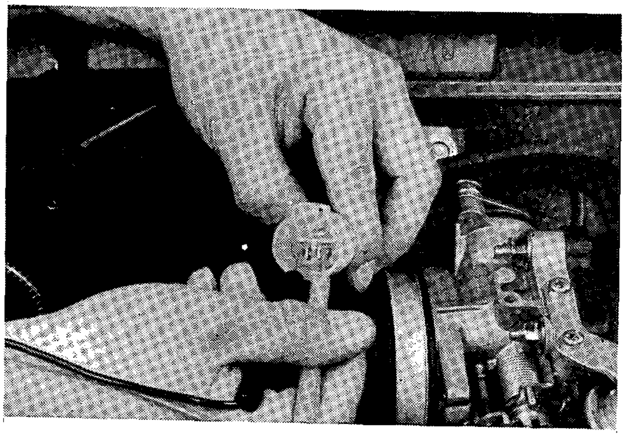
Testing

WARNING

- **Do not perform any adjustment of the throttle valve stop screw since it has been adjusted in a very precise and accurate way.**

1. Disconnect the connector of the throttle sensor.
2. Measure full resistance between the yellow terminal and the green terminal at the sensor.

Resistance should be:
3.2–7.2 KΩ



- If resistance is inside above ranges, adjust the installation position of the throttle sensor.
- If resistance is outside above ranges, replace the throttle sensor.

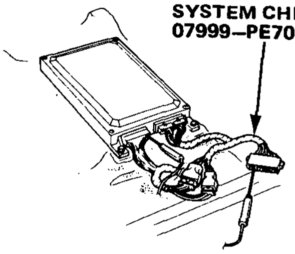
Replacement

Disassembly

1. Remove the plastic cap and remove the throttle sensor.

Reassembly

1. Align the lever pin of the sensor with the throttle valve shaft groove and tighten temporarily.
2. Disconnect the control unit connectors and connect the special tool 'System Checker Harness' between the control unit and the wireharness connector.



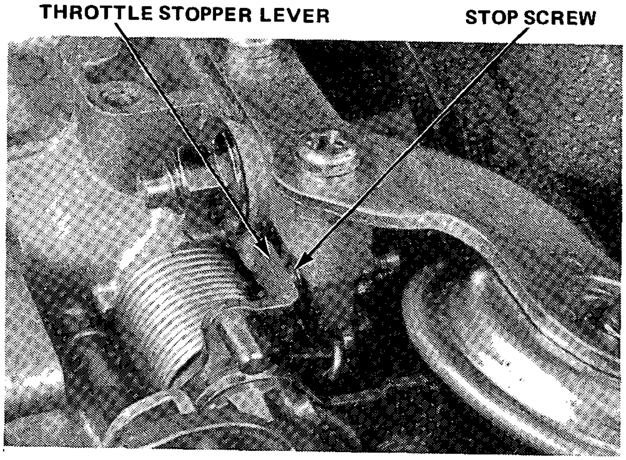
3. Connect a digital voltmeter positive probe to No. 12 terminal of the system checker harness and negative probe to No. 1 terminal of the control unit connector B.

SYSTEM CHECKER HARNESS

①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪
Bu/W	G/W	G/Y	R/Bu	G/Or	Y	Y/Bl	W/Y	Or	Or/Bu	R/Y
R/Bu	W	Y/R	R	W	W/Bu	R/W	R/W	Br/Bl	Br/W	W
⑫	⑬	⑭	⑮	⑯	⑰	⑱	⑲	⑳	㉑	㉒

4. Adjust the sensor into the position which the throttle stopper lever contacts with the stop screw.
5. Turn the ignition switch ON and measure voltage of two terminals.

There should be: 0.48- 0.52 V

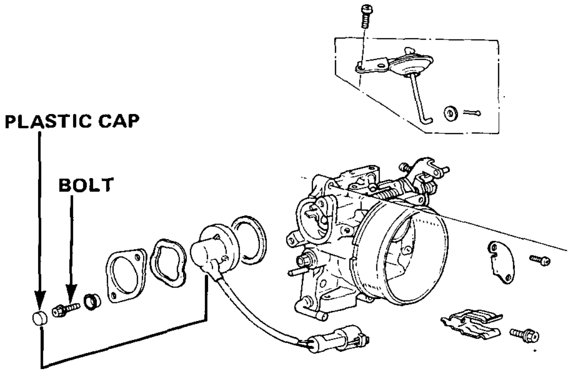


(cont'd)

Throttle Sensor

Replacement (cont'd)

6. Making sure that the voltage within a limit, tighten the sensor bolts and put the plastic cap on.



NOTE: After reassemble the sensor, test the deceleration fuel cut-off device. (see page 11–18).

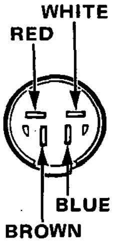
If the deceleration fuel cut-off device does not work, repeat the step (1) through (6) and check the voltage.

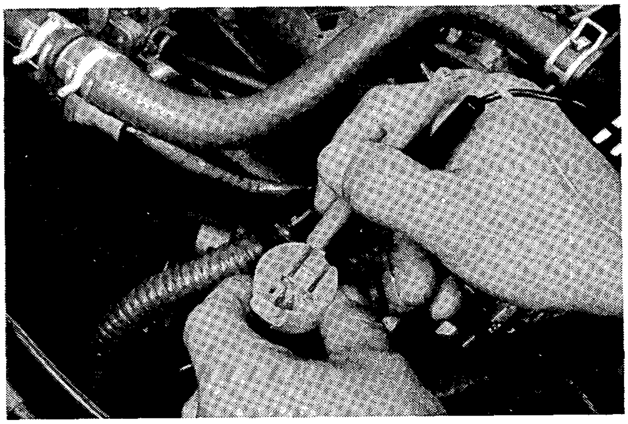
Crank Angle Sensor

Testing

1. Disconnect the connector of the crank angle sensor.
2. Measure resistance between the white terminal and the red terminal, and the brown terminal and the blue terminal at the sensor.

Resistance should be:
0.65–0.85 KΩ





3. Measure insulation resistance between each terminal at the sensor and the sensor housing.

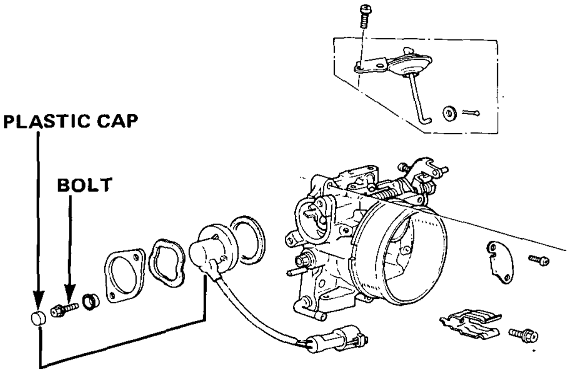
   Insulation resistance should be 100 KΩ or more.

- If resistance is outside above ranges, replace TDC or CYL coil assemblies.

Throttle Sensor

Replacement (cont'd)

6. Making sure that the voltage within a limit, tighten the sensor bolts and put the plastic cap on.



NOTE: After reassemble the sensor, test the deceleration fuel cut-off device. (see page 11–18).

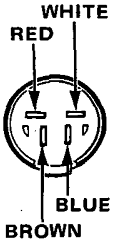
If the deceleration fuel cut-off device does not work, repeat the step (1) through (6) and check the voltage.

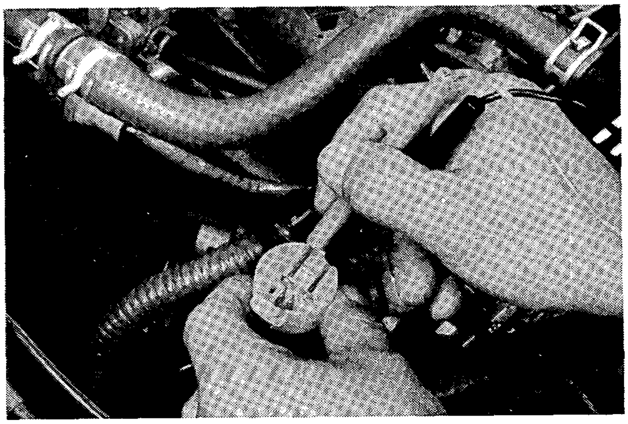
Crank Angle Sensor

Testing

1. Disconnect the connector of the crank angle sensor.
2. Measure resistance between the white terminal and the red terminal, and the brown terminal and the blue terminal at the sensor.

Resistance should be:
0.65–0.85 KΩ





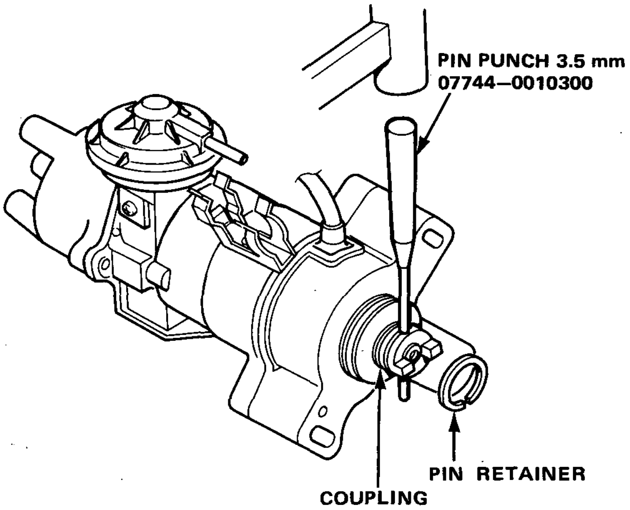
3. Measure insulation resistance between each terminal at the sensor and the sensor housing.

   Insulation resistance should be 100 KΩ or more.

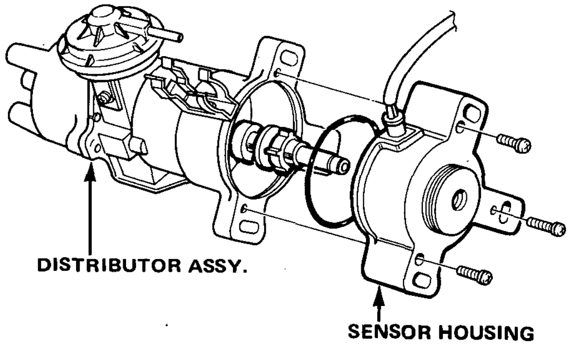
- If resistance is outside above ranges, replace TDC or CYL coil assemblies.

Replacement

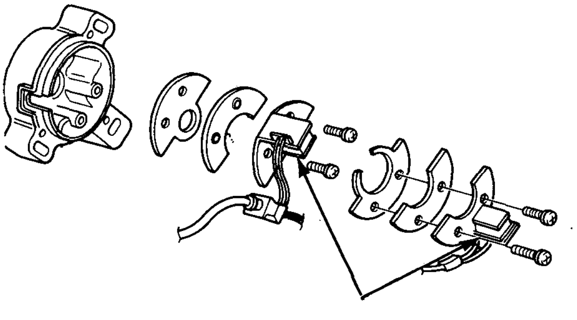
1. Remove the distributor assy. from the cylinder head.
2. Slide off the pin retainer, being careful not stretch it.
3. Drive out roll pin as shown.


PIN PUNCH 3.5 mm
07744–0010300
PIN RETAINER
COUPLING

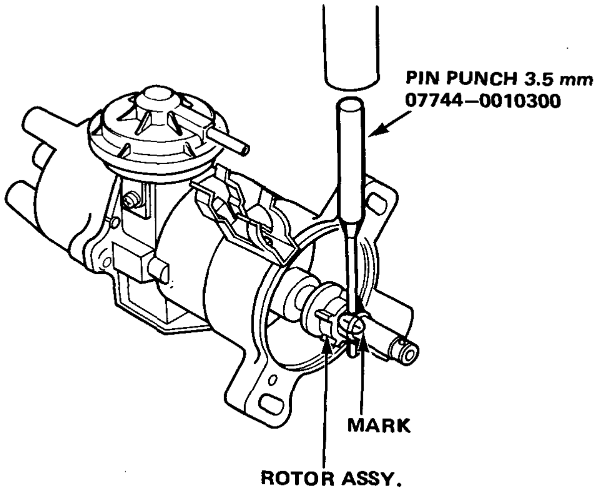
4. Remove the sensor housing from the distributor assy.


DISTRIBUTOR ASSY.
SENSOR HOUSING

5. Remove the coil assy. from the sensor housing.



6. After scribing an aligning mark on the rotor and the shaft, drive out roll pin as shown.


PIN PUNCH 3.5 mm
07744–0010300
MARK
ROTOR ASSY.

7. Carefully pry up rotor assy. by using two screwdrivers. Do not damage rotor assy.

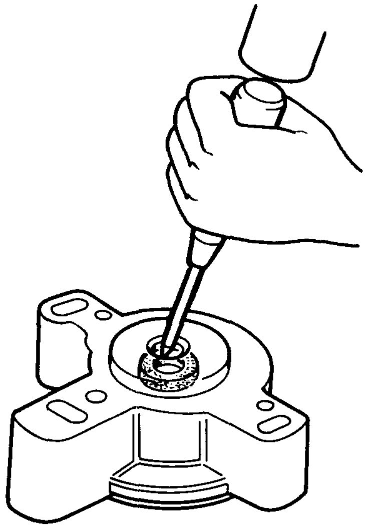
Reassembly is the reverse order of disassembly.

Installation of the distributor assy. sees page 26-10.

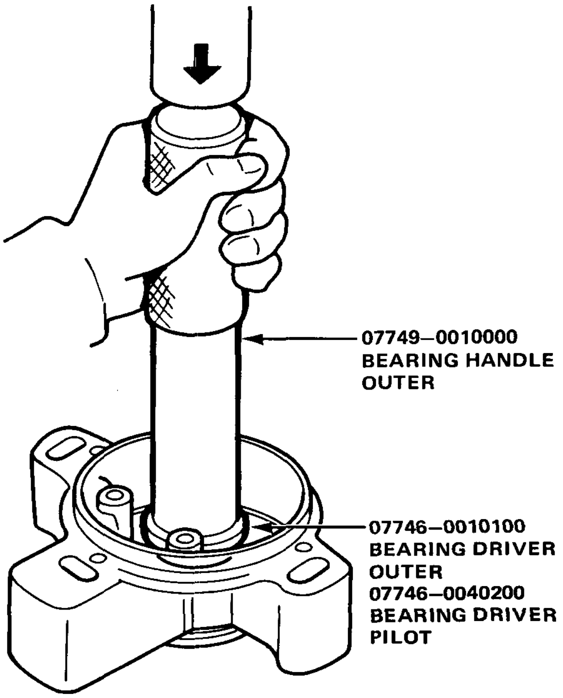
Crank Angle Sensor

Oil Seal Replacement

1. Drive out the oil seal.



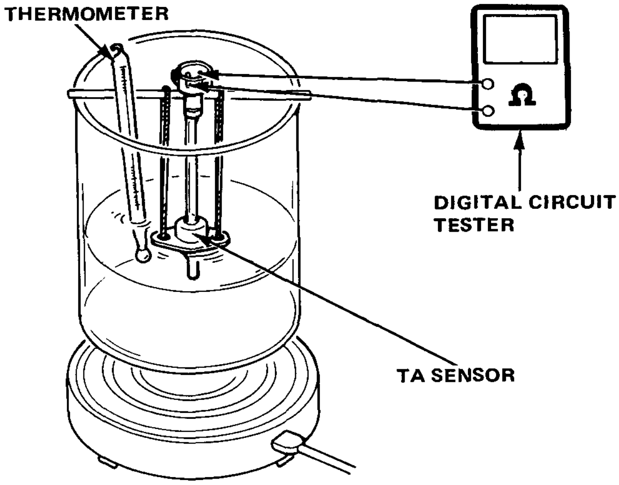
2. Drive the new oil seal into the sensor housing using special tools.


07749–0010000
BEARING HANDLE
OUTER
07746–0010100
BEARING DRIVER
OUTER
07746–0040200
BEARING DRIVER
PILOT

TA Sensor

Testing

1. Disconnect the connector and remove the TA sensor from the intake manifold.
2. To test a TA sensor, suspend it in cold water and heat the water slowly.
3. Measure resistance between the terminals.

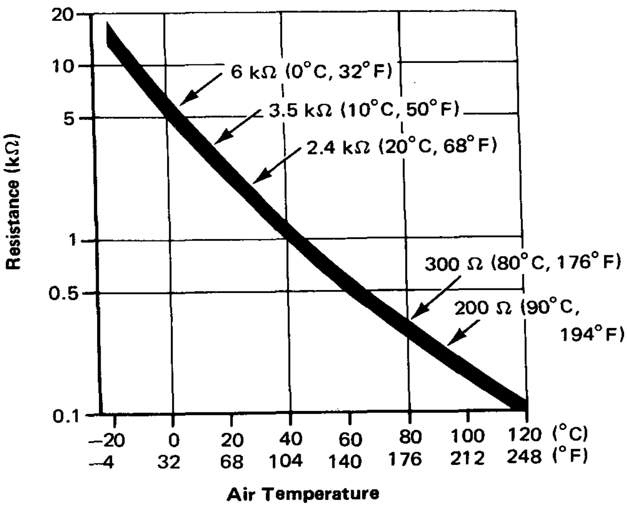

THERMOMETER
Ω
DIGITAL CIRCUIT
TESTER
TA SENSOR

Resistance should be:

2–3.2 KΩ at 20°C (68°F)
0.22–0.35 KΩ at 80°C (176°F)

- If resistance is outside above ranges, replace TA sensor.

The chart below shows the change in resistance over a range of coolant temperatures.

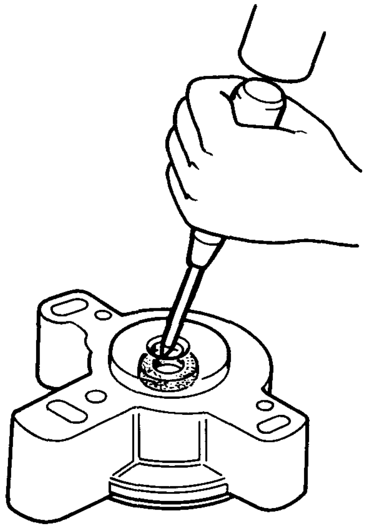


NOTE: Don't let the TA sensor touch the bottom of the container.

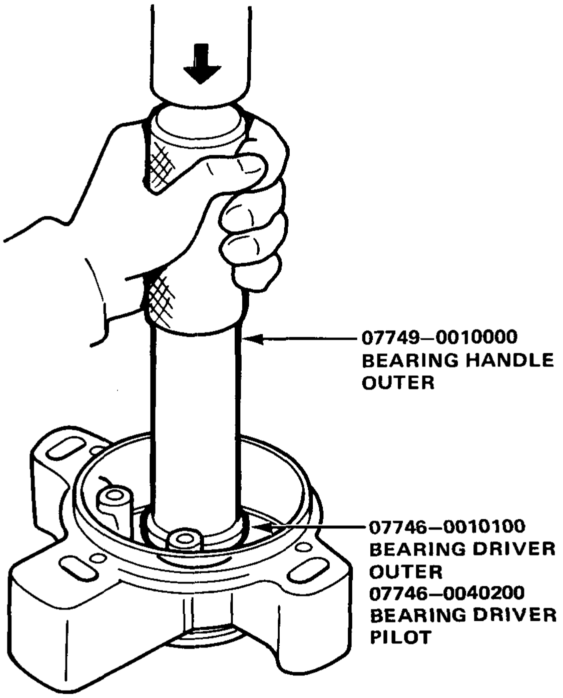
Crank Angle Sensor

Oil Seal Replacement

1. Drive out the oil seal.



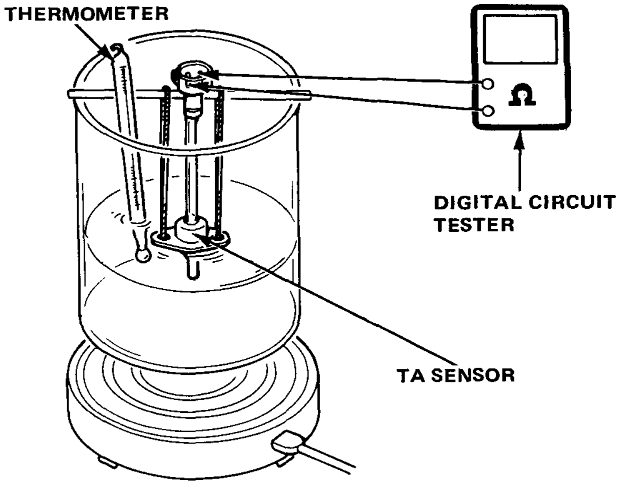
2. Drive the new oil seal into the sensor housing using special tools.


07749–0010000
BEARING HANDLE
OUTER
07746–0010100
BEARING DRIVER
OUTER
07746–0040200
BEARING DRIVER
PILOT

TA Sensor

Testing

1. Disconnect the connector and remove the TA sensor from the intake manifold.
2. To test a TA sensor, suspend it in cold water and heat the water slowly.
3. Measure resistance between the terminals.

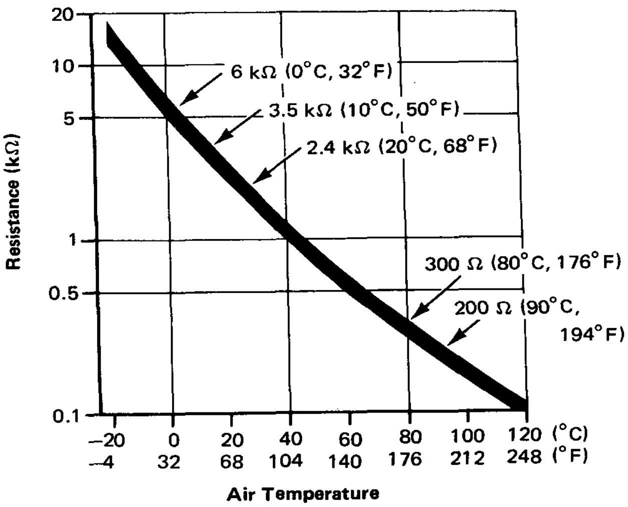

THERMOMETER
Ω
DIGITAL CIRCUIT
TESTER
TA SENSOR

Resistance should be:

2–3.2 KΩ at 20°C (68°F)
0.22–0.35 KΩ at 80°C (176°F)

- If resistance is outside above ranges, replace TA sensor.

The chart below shows the change in resistance over a range of coolant temperatures.



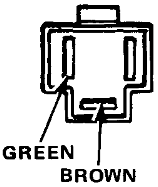
NOTE: Don't let the TA sensor touch the bottom of the container.

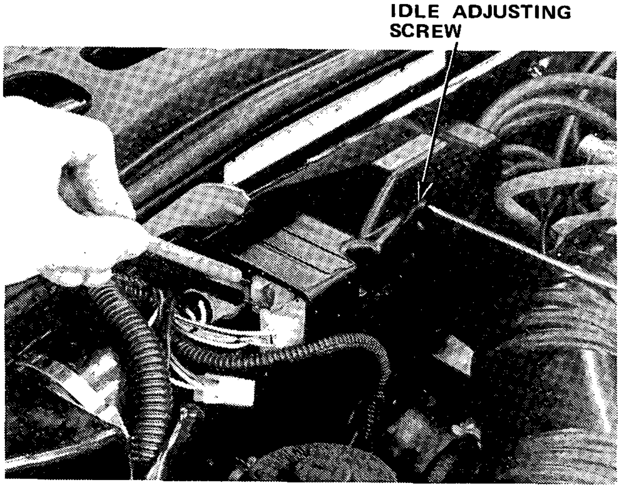
IMA Sensor

Testing

1. Disconnect the connector of the IMA sensor at the control box.
2. Turning the idle adjusting screw fully, measure resistance between the brown terminal and the green terminal at the sensor.

Resistance should be:
0.25–6.2 KΩ





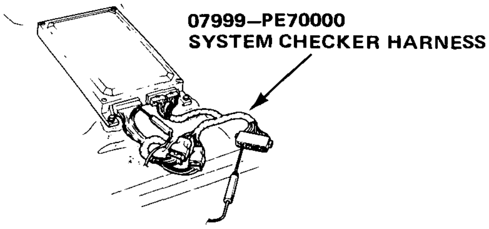
- If resistance is outside above ranges, replace IMA sensor.

NOTE: Whenever the inspection or the replacement of IMA sensor is performed, check specification for CO. See page 11–23.

PA Sensor

Testing

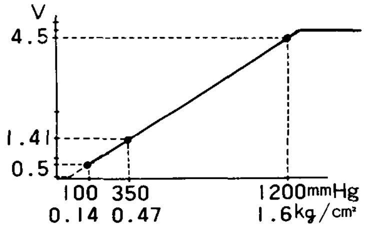
1. Disconnect the control unit connectors and connect the special tool 'System Checker Harness' between the control unit and the wireharness connector.



2. Connect a digital voltmeter positive probe to the terminal No. 19 of the system checker harness and connect negative prove to the terminal No. 1 of the control unit connector B. Turn the ignition switch ON and measure voltage of two terminals.
There should be: 2.76–2.96 V

SYSTEM CHECKER HARNESS

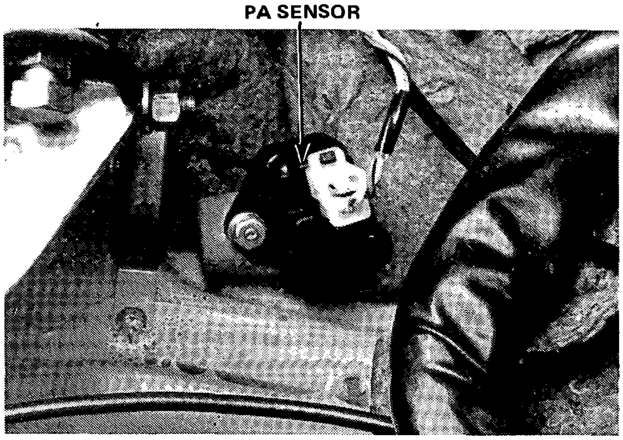
①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪
Bu/W	G/W	G/Y	R/Bu	G/Or	Y	Y/Bl	W/Y	Or	Or/Bu	R/Y
R/Bu	W	Y/R	R	W	W/Bu	R/W	R/W	Br/Bl	Br/W	W
⑫	⑬	⑭	⑮	⑯	⑰	⑱	⑲	⑳	㉑	㉒



- If the voltage does not attain, check the wire harness.
- If the wire harness is OK, replace the PA sensor.

NOTE: The voltage drops as the altitude increases. (0.3 V for every 1,000 m)

PA sensor is located under the left side dash. (R/H drive: Right side)

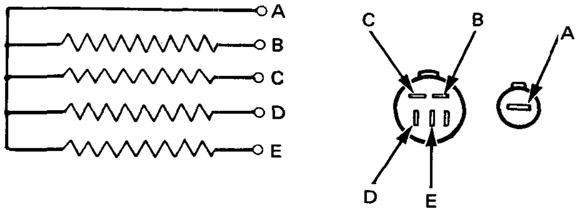


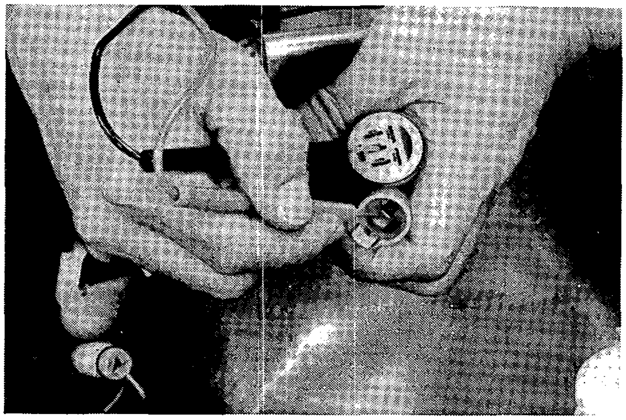
Resistor

Testing

1. Disconnect the connectors of the resistor.
2. Measure resistance between A terminal and each terminal.

Resistance should be 5–7 Ω



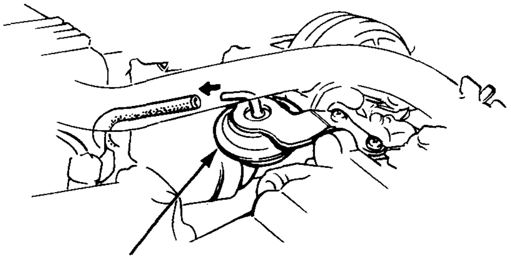


- If resistance is outside above ranges, replace the resistor.

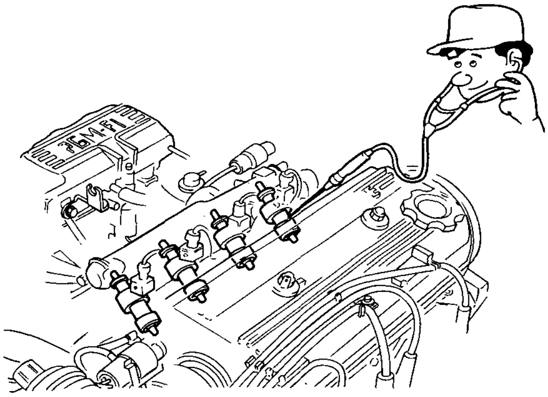
Fuel Cut-off System

Testing

1. Warm up the engine, and confirm that the idling speed is constant and stable.
2. Disconnect the vacuum tube from the dash pot.



3. Raise the engine speed to approximately 3,000 rpm, confirm the injector operation by monitoring ticking noises.



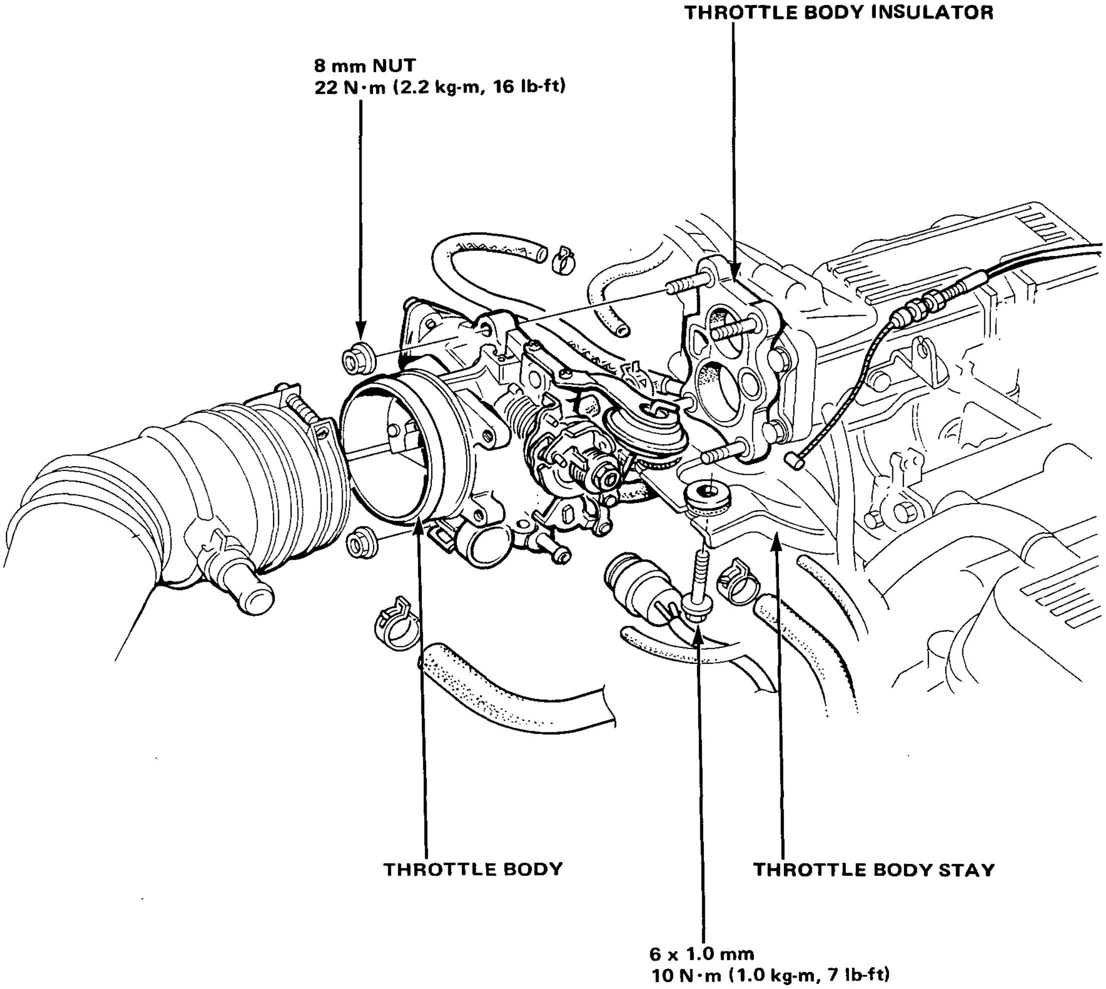
4. Check that the ticking noise of the injector stops momentarily when the accelerator pedal is released.

If the Injection does not stop, it is conceivable that the system is affected by a defect in the control unit, or a defect in the throttle sensor. Check the self-diagnosis lamps in the PGM—FI control unit, and carry out inspections according to the troubleshooting inspection chart. (See page 11—8).

Throttle Body

Index

NOTE: The throttle valve stop screw is factory set. Do not turn the stop screw for idle adjustment.

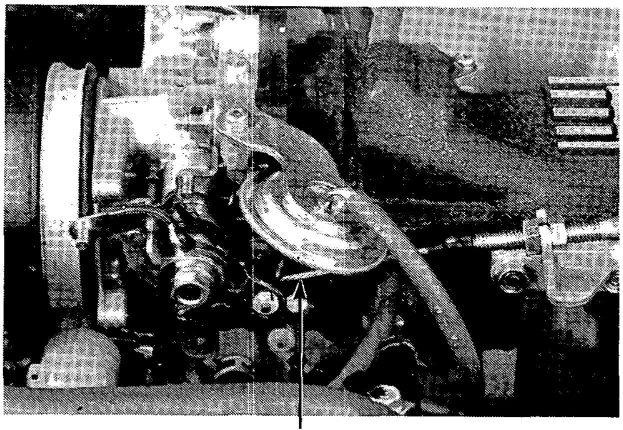

THROTTLE BODY INSULATOR
8 mm NUT
22 N·m (2.2 kg-m, 16 lb-ft)
THROTTLE BODY
THROTTLE BODY STAY
6 x 1.0 mm
10 N·m (1.0 kg-m, 7 lb-ft)

Throttle Cable

Inspection/Adjustment

1. Check that throttle cable operates smoothly with no binding or sticking. Repair as necessary.
2. Check cable free-play at throttle linkage. Cable deflection should be 10–12 mm (0.39–0.47 in.)
3. If deflection is not within specs, loosen locknut and turn adjusting nut until you can deflect cable as specified. Then tighten locknut.
4. With cable properly adjusted, check throttle valve to be sure it opens fully when you push accelerator pedal to the floor.

   CAUTION: Check throttle valve to be sure it returns to idle position whenever you release accelerator.

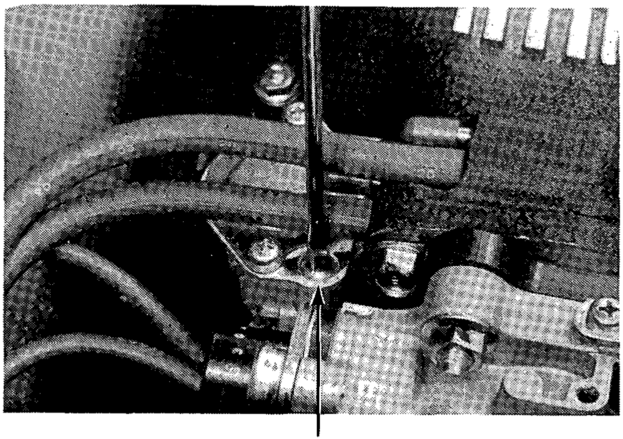


Idle Speed

Adjustment

1. Start engine and warm up to normal operating temperature, the cooling fan will come on.
2. Check idle speed with the headlights, heater blower, cooling fan and air conditioner off.

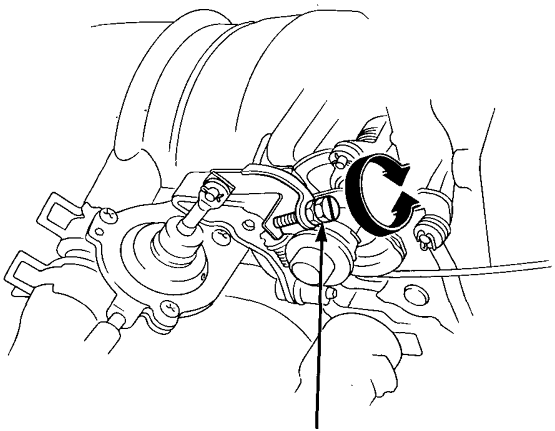
   The idle speed should be: 850 ± 50 min^{-1} (rpm)



Adjust the idle speed, if necessary, by turning the idle adjusting screw.

If equipped with air conditioning, make a second check with the A/C on.

The idle speed shold be: 750 ± 50 min^{-1} (rpm)



Adjust the idle speed, if necessary, by turning the adjusting screw.

Idle Control Solenoid Valve

Testing

An idle control solenoid valve, which is activated by comands from the control unit, is installed in the control box.

When the solenoid valve opens, idle speed increases approximately 150 rpm. Idling speed increases under the following conditions:

- For 30 seconds after starting the engine.
- Altitude higher than 800 m.
- Coolant temperature lower than 70°C (158°F).
- For 0.5 seconds when quick deceleration is detected at 1,000 min^{-1} (rpm).

1. Start engine and warm up to normal operating temperature; the cooling fan will come on.
2. Raise engine speed to 3,500 min^{-1} (rpm) and release the throttle suddenly.
3. Listen for a clicking noise from the idle control solenoid valve at 1,000 rpm.

   - If a clicking noise is heard, the solenoid valve is OK.
   - If no noise is heard, replace the solenoid valve and re-test.

Idle Speed and Mixture

Adjustment

NOTE:

- Perform the measurement in a place with good ventilation and with no direct exposure to the wind and rain.
- Perform the measurement while the engine is idling. (under no load).
- Use a precise tachometer to check engine rpm.
- Use the NDIR CO meter in accordance with the manufacturers' recommended procedures.
- The following inspections and adjustments should be completed before the measurement.

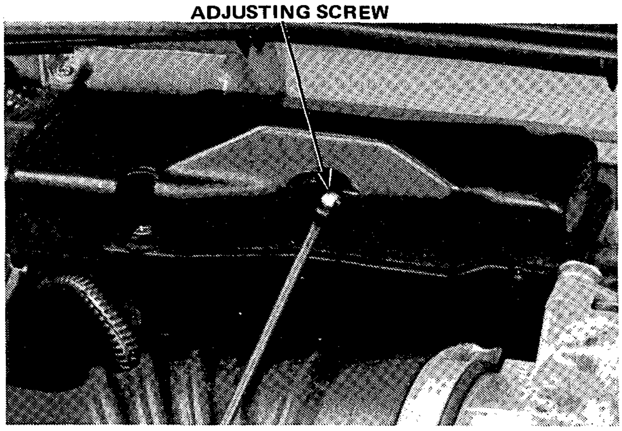
  Air cleaner element
  Ignition timing and control system
  Spark plugs
  Idling speed
  Valve clearance
  PCV valve

1. Start the engine, and, after the radiator cooling fan works two times, further warm up the engine at 3,000 rpm for two minutes or more.
2. Insert exhaust gas sampling probe into the tail pipe at least 40 cm (16 in.)
3. Check specification for idle speed and CO with the headlights off (On Swedish model: on) and cooling fan off.

   The idle speed should be: 850 ± 50 min^{-1} (rpm)

	Specified CO%
Swedish model	Below 1.5%
Switzerland model	0.5–2%

4. If unable to obtain this reading, remove the rubber cap on the control box and remove the hole plug on the IMA sensor. Adjust by turning adjusting screw of the IMA sensor.



If unable to obtain a CO reading of specified % by this procedure, check the engine tuen-up condition.

Be sure to put the rubber cap and hole plug on when the adjustment is completed.

Fast Idle Valve

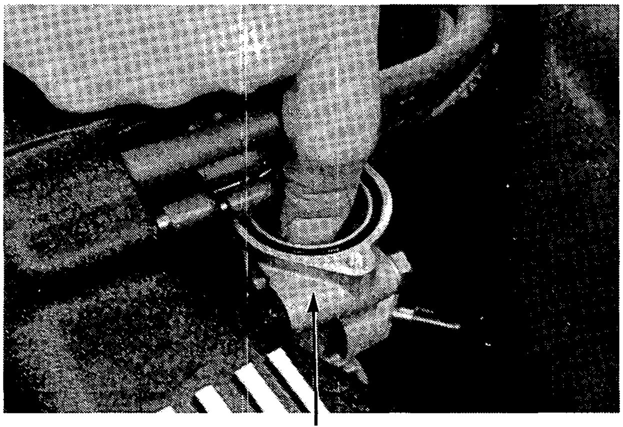
Testing

NOTE:
- As the fast idle valve is factory adjusted, the valve should not be disassembled.
- Check beforehand the PCV (engine breather) circuit tubing for breakage, disconnection, clogging, etc.
- Confirm that the throttle valves are fully closed.

If idle speed does not obtain by turning the idle adjusting screw, check the following.

Idle speed too high after engine is warmed up.

1. Confirm that the engine is adequately warmed up.
2. Check whether the idling control function is normal. (See page 11–23)
3. Remove the cover of the fast idle valve.
4. Check that the valve is completely closed. If not, air is being suck from the valve seat area. It can be detected by putting your finger on the valve seat area.

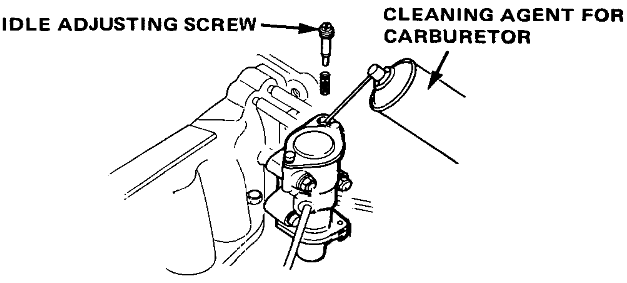


FAST IDLE VALVE ASSY.

If any sucking is felt, the valve is leaking. Replace the fast idle valve and adjust idle speed.

Idle speed is too low after engine is warmed up.

1. Remove the idle adjusting screw.

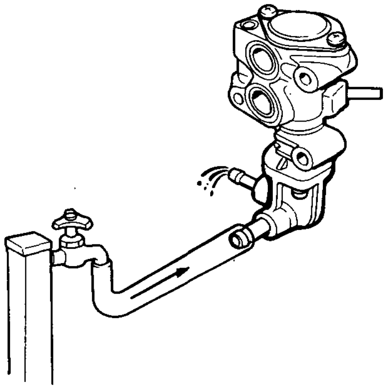


2. Wash the idle adjusting screw and the air by-pass channel with carburetor cleaner agent generally available on the market.
3. Readjust idle speed after cleaning.

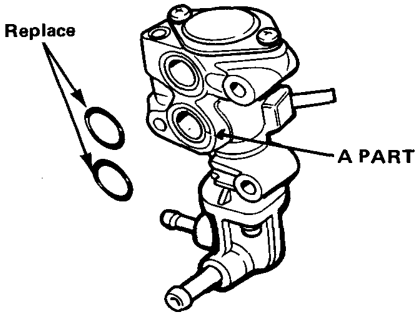
Fast idle speed is low when engine is cold (coolant temperature below 50°C (122°F)).

The fat idle speed should be: 1,200–2,000 min^{-1} (rpm)

1. Remove the fast idle valve assy. from the intake manifold.
2. Apply cold water and cool down the wax part of the fast idle valve to 5–30°C. (41–86°F)



3. Suck the part A in the fast idle valve, and check that a fairly large amount of air flows without resistance.



If air does not flow or the resistance is large, replace the fast idle valve and adjust idle speed. (See page 11–22)

Fuel Line

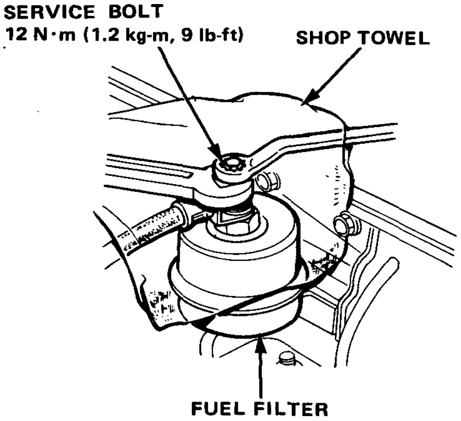
Testing

WARNING **Do not smoke while working on fuel system. Keep open flame away from work area. Drain fuel only into an approved container.**

CAUTION: ***Before disconnecting the fuel line, fuel pressure should be relieved by loosening the service bolt on the top of the fuel filter while engine is stopped.***

Fuel Pressure Relief Method

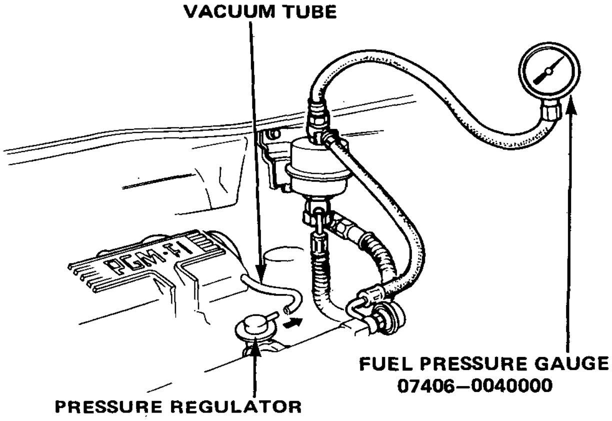
1. Disconnect the negative terminal from the battery.
2. Place a shop towel over the fuel filter to prevent pressurized fuel from spreading over the engine.
3. Loosen the service bolt slowly by approximately one full turn. This relieves fuel pressure.
4. Using a new sealing washer, tighten the service bolt.



Fuel Pressure Measurement

1. Relieve fuel pressure.
2. Remove the service bolt and attach the fuel pressure gauge.
3. Start the engine, and measure the fuel pressure.

Pressure should be:
230–270 kPa (2.35–2.75 kg/cm^2, 33–39 psi.)
(Engine at idling, with the vacuum tube of the regulator disconnected.)



If the fuel pressure is out of the limit, check the fuel pump first.
Then, check the following:

In case the fuel pressure is higher than the standard value:

- Pinched or clogged fuel return hose or piping.
- Pressure regulator failure

In case the fuel pressure is lower than the standard value:

- Clogged fuel filter
- Pinched or clogged fuel hose from the fuel tank to the fuel pump
- Pressure regulator failure
- Leakage in the fuel line

Check that the vacuum tube from the intake manifold to the pressure regulator is properly connected and it is not pinched or damaged.

Fuel Filter

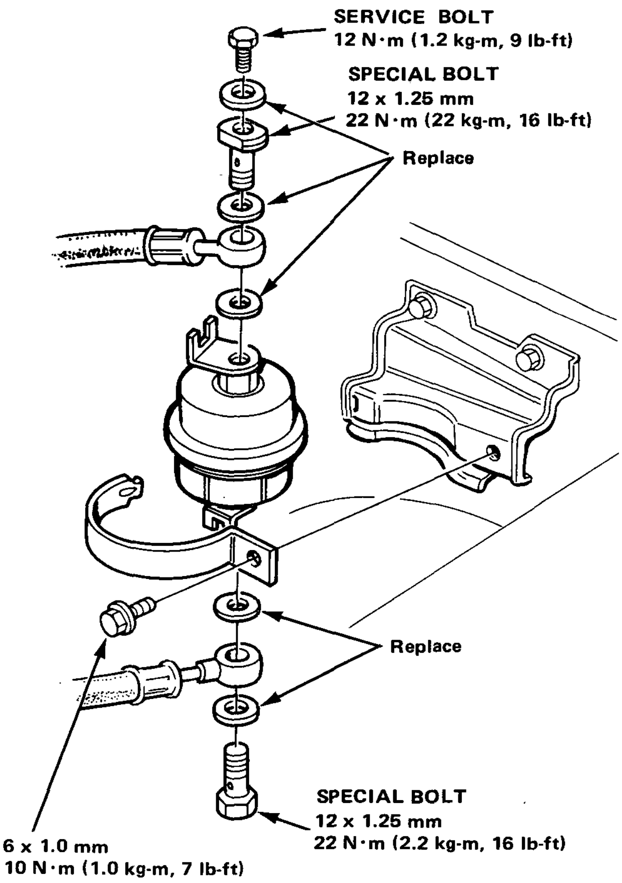
Replacement

WARNING Do not smoke while working on fuel system. Keep open flame away from work area.

Fuel filter should be replaced;

- Every 48,000 Km (30,000 miles)
- When fuel pressure drops below the specified value (2.55 ± 0.2 kg/cm^2 with the vacuum pressure tube disconnected) after making it sure that the fuel pump and the pressure regulator are normal.

1. Relieve the fuel pressure by loosening the service bolt. (See page 11–25)
2. Remove the upper special bolt.
3. Remove the fuel filter retainer bolt.
4. Remove the lower special bolt.
5. Assemble the new fuel filter using new sealing washers.


SERVICE BOLT
12 N·m (1.2 kg-m, 9 lb-ft)
SPECIAL BOLT
12 x 1.25 mm
22 N·m (22 kg-m, 16 lb-ft)
Replace
Replace
SPECIAL BOLT
12 x 1.25 mm
22 N·m (2.2 kg-m, 16 lb-ft)
6 x 1.0 mm
10 N·m (1.0 kg-m, 7 lb-ft)

Pressure Regulator

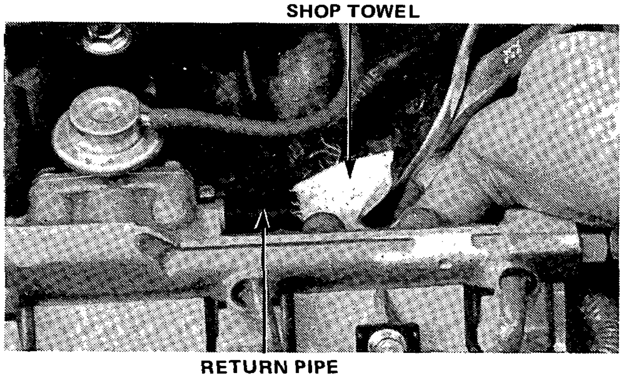
Testing/Replacement

Check the pressure regulator for the following:

- Broken, pinched or disconnected vacuum tube for the pressure regulator.
- Check that the fuel pressure rises with the vacuum tube of the pressure regulator disconnected. (See page 11–25)

Pressure should be:
230–270 kPa (2.35–2.75 kg/cm^2, 33–39 psi)
(With the vacuum tube disconnected)

If the fuel pressure does not rise, check that the fuel pressure rises when the return pipe from the pressure regulator to the fuel tank is slightly pinched.

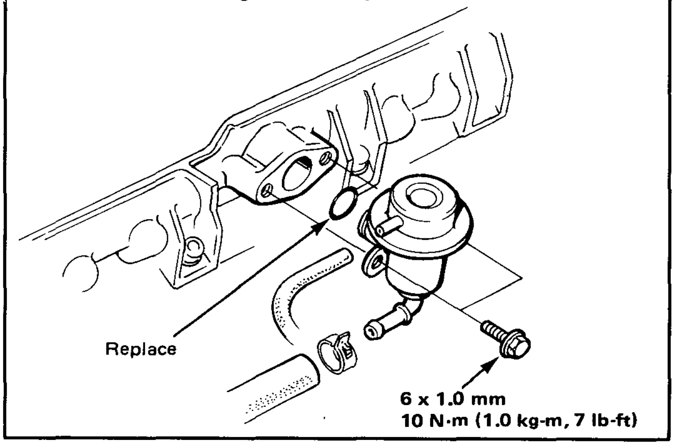

SHOP TOWEL
RETURN PIPE

NOTE: Place a shop towel under the pressure regulator before removing the pressure regulator.

Replacement

1. Disconnect the negative terminal of the battery.
2. Relieve fuel pressure. (See page 11–25)
3. Disconnect the vacuum tube and the fuel return hose.
4. Remove the two 6 mm retainer bolts.

- Replace the O-ring.
- When assembling the regulator, apply gasoline to the O-ring and assemble it into its proper position, taking care not to damage the O-ring.


Replace
6 x 1.0 mm
10 N·m (1.0 kg-m, 7 lb-ft)

Fuel Injector

Testing / Replacement

Testing

NOTE: Check the engine tune-up condition before testing.

In Case the Engine can be Started

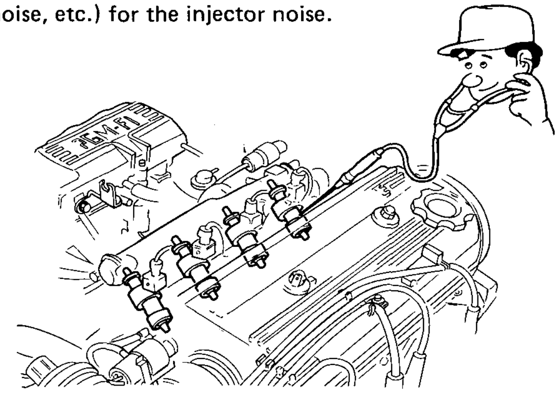
1. With the engine idling, disconnect one by one the coupler of the injector for each cylinder, and inspect the change in the idling speed.

   If the idling speed changes almost in the same way as in the case of other cylinder, the injector is normal.

2. Check the ticking noise of each injector by means of a sound scope (if unavailable, with a small screw driver) when the engine is idling.

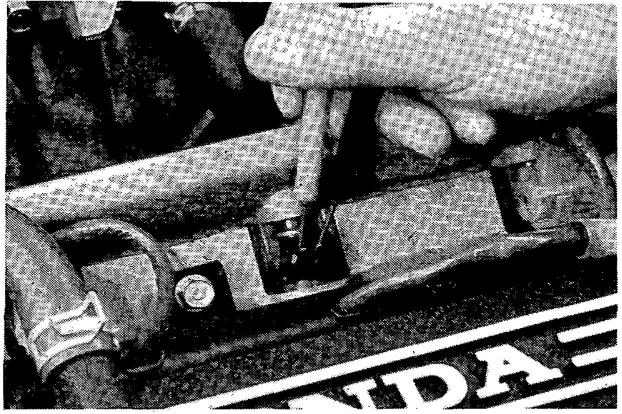
   If the ticking noise is not generated on a injector, check the noise again after the replacement of the injector with a normal one. Check wiring between the control unit and the injector.

NOTE: Do not mistake other engine noises (tappet noise, etc.) for the injector noise.



In Case the Engine can not be Started

1. Remove the coupler of the injector, and measure the resistance value between the terminals of the injector.
   Resistance should be:
   1.5–2.5 Ω



If out of the limit, replace the injector.

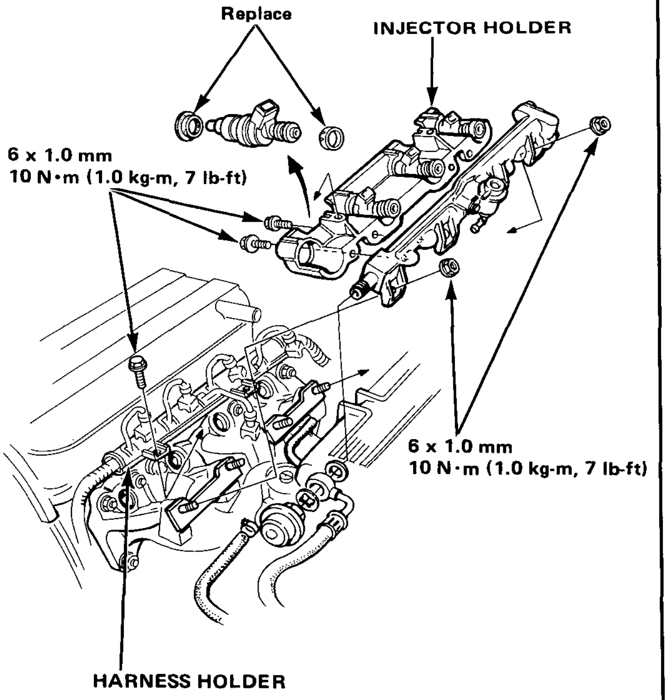
If the resistance is normal, check the following:

- Whether there is any short circuiting, wire-breakage, or poor contact in the wiring between the injector and the resistor.
- Whether the resistor is normal.
- Whether there is any short-circuiting, wire-breakage, or poor connection in the wiring between the resistor and the control unit.

Replacement

WARNING Do not smoke while working on fuel system. Keep open flame away from work area. Drain fuel only into an approved container.

1. Relieve fuel pressure. (See page 11–25)
2. Disconnect fuel lines.
3. Disconnect the coupler of the injector.
4. Remove the two 6 mm bolts of the harness holder.
5. Remove the fuel-line retainer nuts.
6. Remove the fuel line and the injector holder from the intake manifold.
7. Remove the injector holder retainer bolts.
8. Remove the injector from the injector holder.



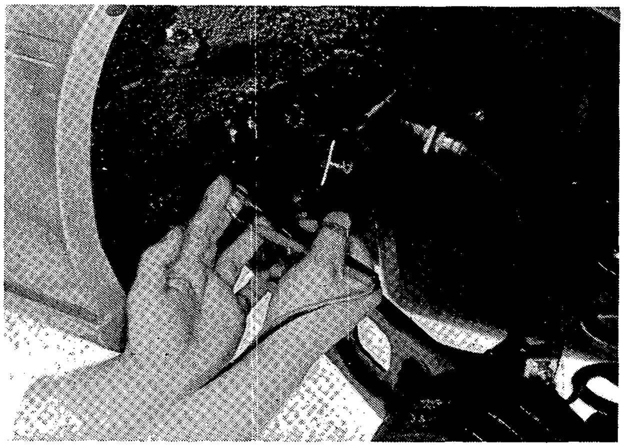
Fuel Pump

Testing

CAUTION: Be sure to turn the ignition switch OFF before disconnecting the coupler.

Confirm that the operation noise of the fuel pump is generated for approximately two seconds when the ignition switch is turned ON.
If the pump does not make the operation noise, carry out the inspection described below:

1. Check that the battery voltage can be detected just when the ignition switch is turned ON at the fuel pump wire couplers. (Positive probe to the yellow wire, negative probe to the black wire)

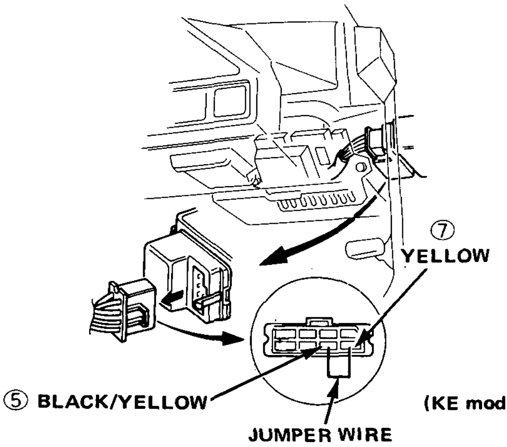


- If the battery voltage is detected, replace the fuel pump.
- If there is no voltage, check the main relay and the wire harness.

Output Test

WARNING Do not smoke during the test. Keep any open flame away from your work area.

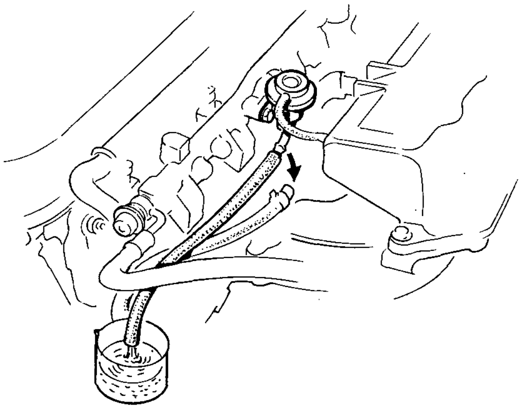
1. With the ignition switch OFF, disconnect connector from main relay.
2. Connect the yellow and black/yellow wires together using a jumper wire.



(KE model shown)

3. Relieve fuel pressure. (See page 11-25)
4. Disconnect fuel return hose at pressure regulator and connect a hose for measurement to it and hold a graduated container under the hose.
5. Turn ignition ON, measure amount of full flow for 10 seconds, then turn ignition OFF.

   Fuel flow should be more than 230 cm^3 (7.8 oz.) in 10 seconds with battery boltage at 12 volts.



If fuel flow is less than 230 cm^3 (7.8 oz.);
- Fuel pump failure
- Clogged fuel filter
- Clogged fuel pipe
- Pressure regulator failure

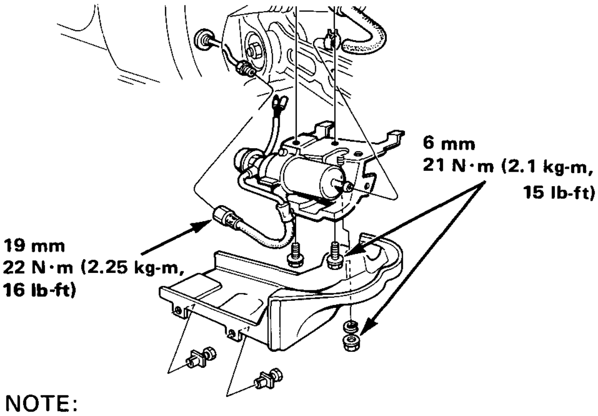
Main Relay

Replacement

WARNING

- **Do not smoke while working on fuel system. Keep open flame away from work area.**
- **Block front wheels before jacking up rear of car.**

1. Jack up rear of car and place jack stands in proper locations.
2. Remove left rear wheel.
3. Remove the fuel pump cover.
4. Disconnect fuel lines and electrical leads at the fuel pump.
5. Removing three bolts, remove fuel pump with mount.

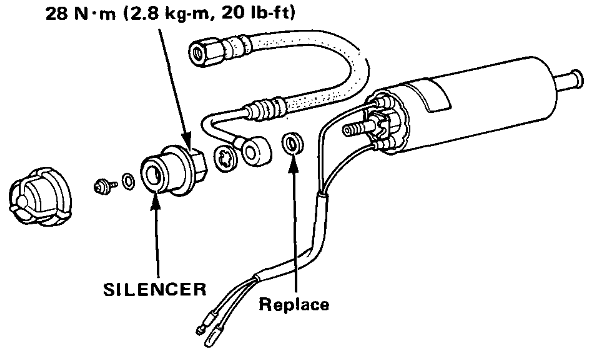


NOTE:

- When assembling the flare joint part, clean the joint area and coat its screw part with new engine oil. (Assemble the joint soon after engine oil is applied to it.)
- Bring the sealing surfaces into proper contact, tighten the flare nut.
- After the installation work is completed, turn the ignition switch ON. (Do not operate the starter) As the fuel pump is operated for approximately two seconds, the fuel pressure in the fuel line rises.
  Repeat this operation two to three times, and check whether there is any leakage of fuel in the fuel line.

Silencer Replacement

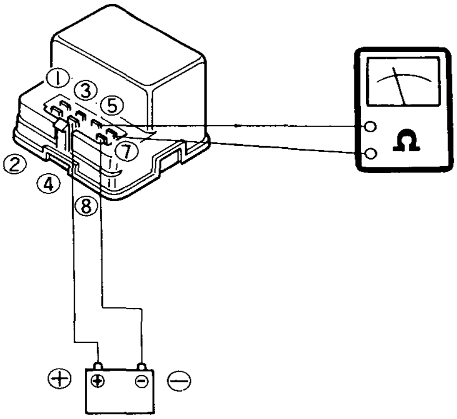
1. Remove the fuel line and the silencer from the pump.

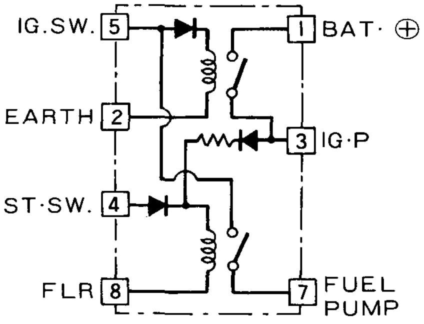


CAUTION: Do not disassemble the pump

Testing

1. Remove the main relay located under the dash.
2. Connect the battery positive terminal to the No. 4 terminal and the battery negative terminal to the No. 8 terminal of the main realy.
3. Check that there is continuity between the No. 5 terminal and the No. 7 terminal of the main relay.
4. Connect the battery positive terminal to the No. 5 terminal and the battery negative terminal to the No. 2 terminal of the main relay.
5. Check that there is continuity between the No. 1 terminal and the No. 3 terminal of the main relay.
6. Connect the battery positive terminal to the No. 3 terminal and the battery negative terminal to the No. 8 terminal of the main relay.
7. Check that there is continuity between the No. 5 terminal and the No. 7 terminal of the main relay.





If there is no continuity, replace the main relay.

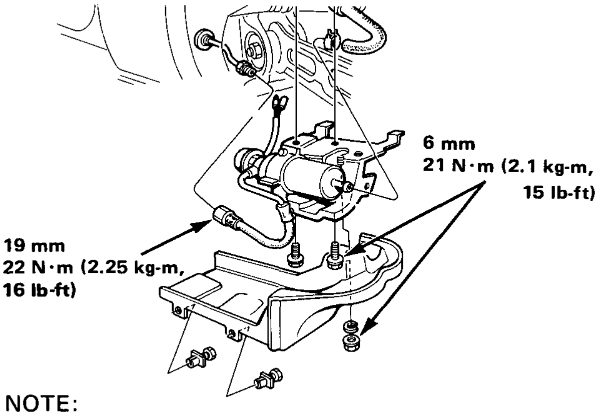
Main Relay

Replacement

WARNING

- **Do not smoke while working on fuel system. Keep open flame away from work area.**
- **Block front wheels before jacking up rear of car.**

1. Jack up rear of car and place jack stands in proper locations.
2. Remove left rear wheel.
3. Remove the fuel pump cover.
4. Disconnect fuel lines and electrical leads at the fuel pump.
5. Removing three bolts, remove fuel pump with mount.

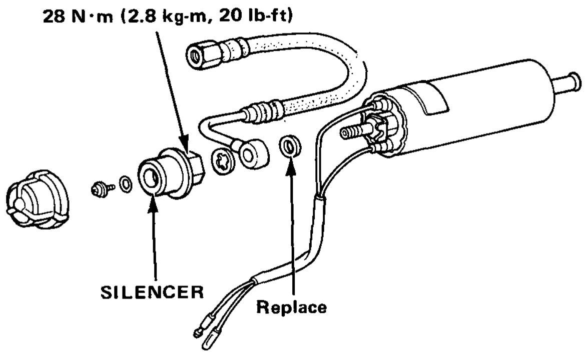


NOTE:

- When assembling the flare joint part, clean the joint area and coat its screw part with new engine oil. (Assemble the joint soon after engine oil is applied to it.)
- Bring the sealing surfaces into proper contact, tighten the flare nut.
- After the installation work is completed, turn the ignition switch ON. (Do not operate the starter) As the fuel pump is operated for approximately two seconds, the fuel pressure in the fuel line rises.
  Repeat this operation two to three times, and check whether there is any leakage of fuel in the fuel line.

Silencer Replacement

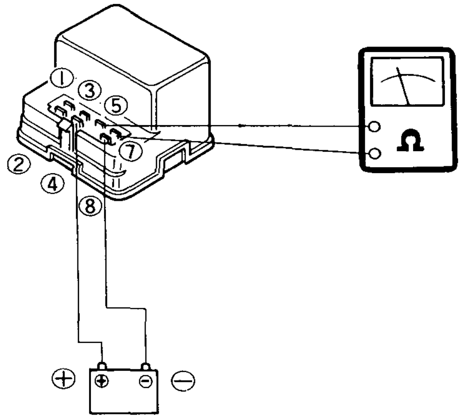
1. Remove the fuel line and the silencer from the pump.

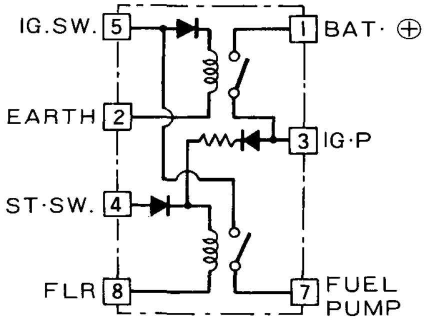


CAUTION: Do not disassemble the pump

Testing

1. Remove the main relay located under the dash.
2. Connect the battery positive terminal to the No. 4 terminal and the battery negative terminal to the No. 8 terminal of the main realy.
3. Check that there is continuity between the No. 5 terminal and the No. 7 terminal of the main relay.
4. Connect the battery positive terminal to the No. 5 terminal and the battery negative terminal to the No. 2 terminal of the main relay.
5. Check that there is continuity between the No. 1 terminal and the No. 3 terminal of the main relay.
6. Connect the battery positive terminal to the No. 3 terminal and the battery negative terminal to the No. 8 terminal of the main relay.
7. Check that there is continuity between the No. 5 terminal and the No. 7 terminal of the main relay.





If there is no continuity, replace the main relay.

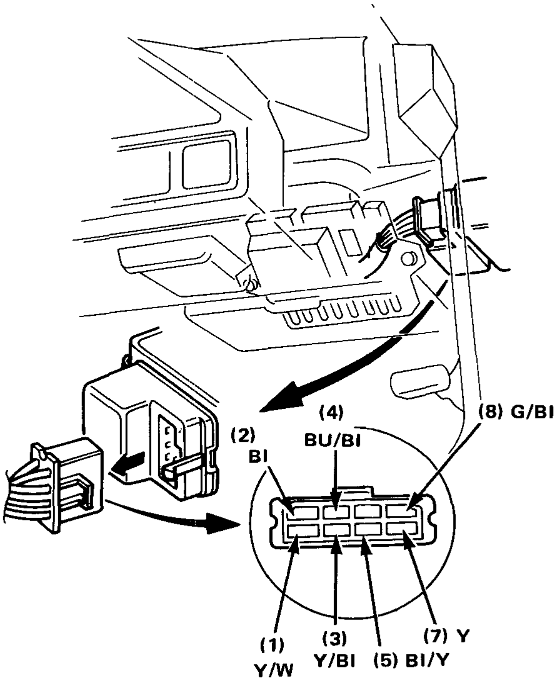
Wire Harness

Testing

Connection between the battery and the main relay

1. Keep the ignition switch in the OFF position.
2. Disconnect the main relay coupler.
3. Connect the positive terminal of the circuit tester to the yellow/white wire (1) in the coupler and ground the negative terminal of the tester to the body.

- The tester should indicate the battery voltage.
- If there is no voltage, check the wiring between the battery and the main relay as well as the fuse No. 17. (KE: 20, Finland: 21)



(KE model shown)

Connection between the battery and the main relay. (IGI)

1. Keep the ignition switch in the OFF position.
2. Disconnect the main relay coupler.
3. Connect the positive terminal of the tester to the black/yellow wire (5) of the coupler and ground the negative terminal of the tester to the body.
4. Turn the ignition switch ON.

- The tester should indicate the battery voltage.
- If there is no voltage, check the wiring from the ignition switch and the main relay as well as the fuse No. 4.

Connection between the battery and the main relay (ST. SW.)

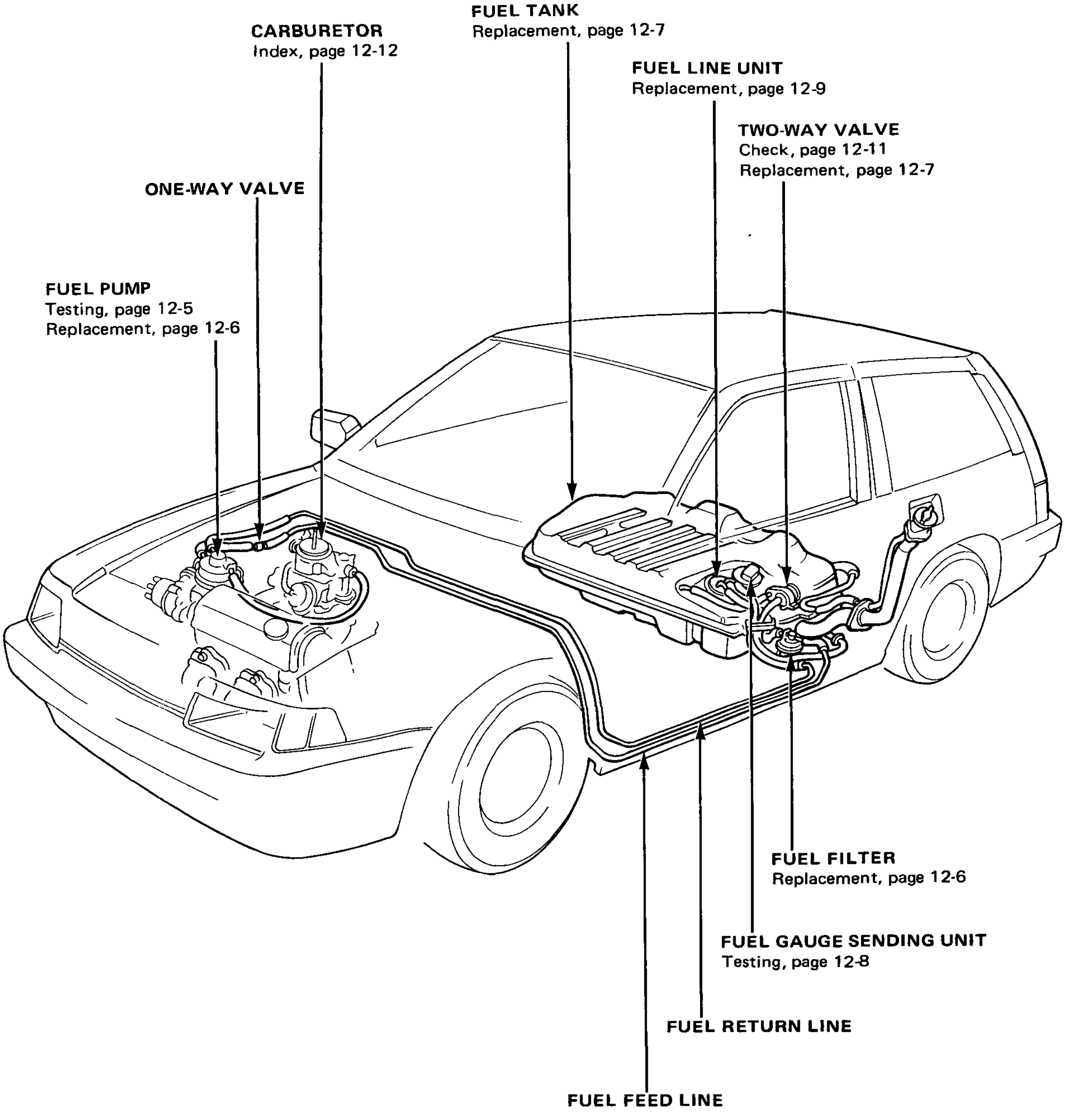
1. Keep the ignition switch in the OFF position.
2. Disconnect the main relay coupler.
3. Connect the positive terminal of the tester to the blue/white (KE: blue/black) wire (4) in the coupler and ground the negative terminal to the body.
4. Turn the ignition switch to the START position.

- The tester should indicate the battery voltage.
- If there is no voltage, check the wiring between the ignition switch and the main relay, as well as the fuse No. 21. (KE: 19, KS. Finland: 20)

Connection between the battery and the fuel pump

1. Keep the ignition switch in the OFF position.
2. Disconnect the main relay coupler.
3. Connect with a jumper wire between the yellow/white wire (1) and the yellow wire (7) in the coupler.

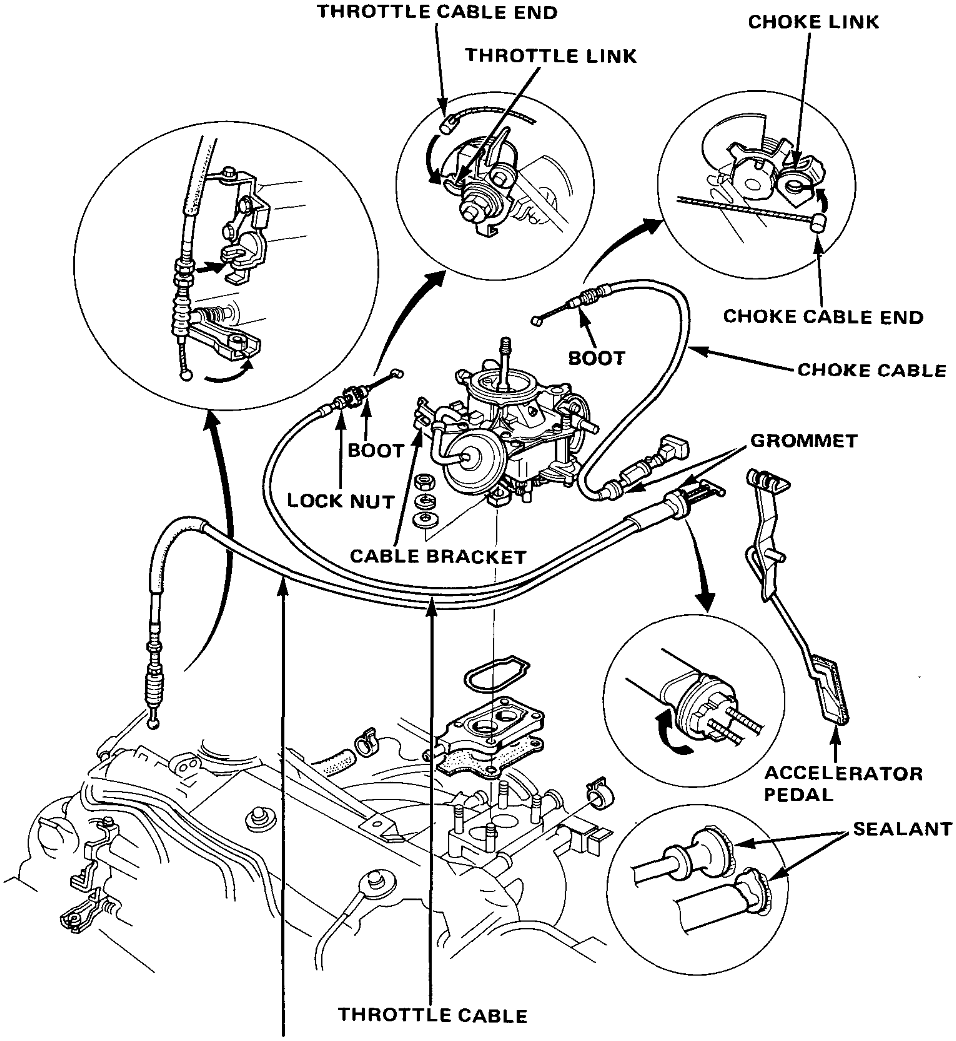
- Confirm that the fuel pump operates.
- If the fuel pump does not work, check the wiring between the battery and the fuel pump and the wiring from the fuel pump to the earth (black wire).


FUEL TANK
Replacement, page 12-7
CARBURETOR
Index, page 12-12
FUEL LINE UNIT
Replacement, page 12-9
TWO-WAY VALVE
Check, page 12-11
Replacement, page 12-7
ONE-WAY VALVE
FUEL PUMP
Testing, page 12-5
Replacement, page 12-6
FUEL FILTER
Replacement, page 12-6
FUEL GAUGE SENDING UNIT
Testing, page 12-8
FUEL RETURN LINE
FUEL FEED LINE

Throttle Cable/Choke Cable

Removal/Installation

1. Push back boot and unscrew locknut.
2. Pull back throttle cable outer and slide cable out of throttle cable bracket.
3. Remove throttle cable end from throttle link.
4. Remove throttle cable end from accelerator pedal.
5. Remove throttle cable from cable stay on valve cover.
6. Turn grommet 90° and pull throttle cable through firewall from engine side.

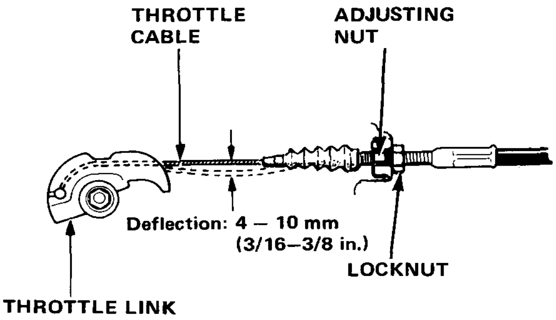

THROTTLE CABLE END
THROTTLE LINK
CHOKE LINK
CHOKE CABLE END
BOOT
CHOKE CABLE
GROMMET
BOOT
LOCK NUT
CABLE BRACKET
ACCELERATOR PEDAL
SEALANT
THROTTLE CABLE

THROTTLE CONTROL CABLE
(Part of the throttle cable on cars with Hondamatic transmission)
See page 16-60 for adjustment.

Throttle Cable

Inspection/Adjustment

1. Check that throttle cable operates smoothly with no binding or sticking. Repair as necessary.
2. Check cable free-play at throttle linkage. Cable deflection should be 4—10 mm (3/16—3/8 in.)

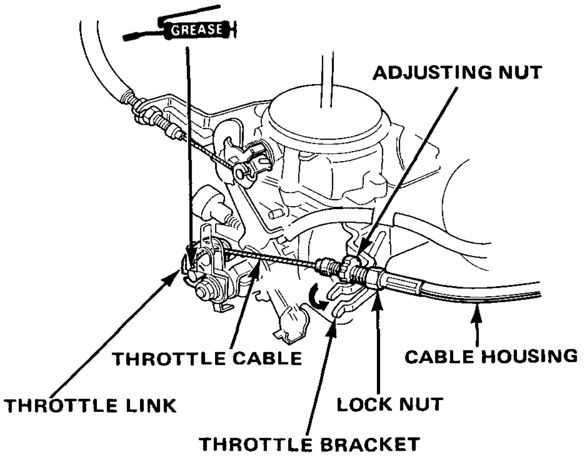

THROTTLE CABLE
ADJUSTING NUT
Deflection: 4 — 10 mm (3/16—3/8 in.)
LOCKNUT
THROTTLE LINK

3. If deflection is not within specs, loosen locknut and turn adjusting nut until you can deflect cable as specified. Then tighten locknut.
4. With cable properly adjusted, check throttle valve to be sure it opens fully when you push accelerator pedal to the floor.

CAUTION: Check throttle valve to be sure it returns to idle position whenever you release accelerator.

Installation

1. Install the throttle cable in the throttle link.

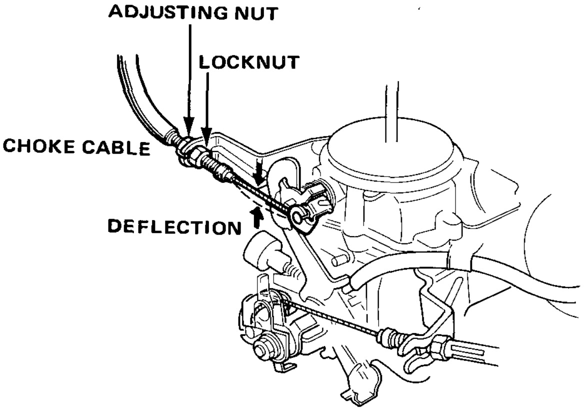

GREASE
ADJUSTING NUT
THROTTLE CABLE
CABLE HOUSING
THROTTLE LINK
LOCK NUT
THROTTLE BRACKET

2. Slip the cable housing into the throttle bracket and adjust the cable deflection as described in the previous procedure.
3. On models with Hondamatic transmission, adjust the throttle control cable. See page 16-60.

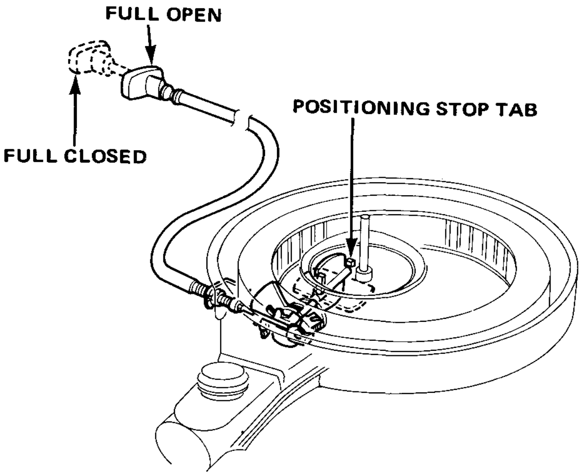
Choke Cable

Adjustment

1. Check that choke control operates smoothly with no evidence of binding or sticking.
   Repair as necessary.



2. Push choke knob all the way in.
   Choke butterfly valve should be fully open.
3. Check cable free-play at choke linkage.
   Cable deflection should be 5–6 mm (0.20–0.24 in.) with fingers pushed on the cable.
4. Pull the knob all the way out.
   Choke butterfly valve should be fully close.



5. If butterfly valve does not fully open, turn adjusting nut until butterfly valve moves off the positioning stop tab. Turn adjusting nut until cable has no deflection. Loosen adjusting nut until cable deflects 5–6 mm (0.20–0.24 in.). Tighten locknut.
6. If butterfly valve does not close properly, inspect for binding of the valve and shaft, and for proper operation of the return spring.

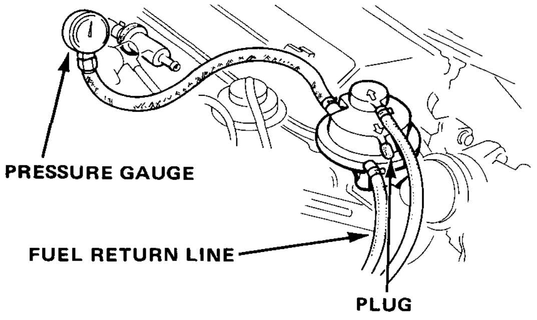
Fuel Pump

Output Test

WARNING Do not smoke during the test. Keep any open flame away from your work area.

NOTE: Check for a clogged fuel filter and/or fuel line before checking fuel pump pressure.

1. Disconnect the fuel line at the fuel filter in the engine compartment, and connect a pressure gauge to it as shown.
2. Disconnect the fuel return line at the fuel pump and plug the return fitting with a cap.



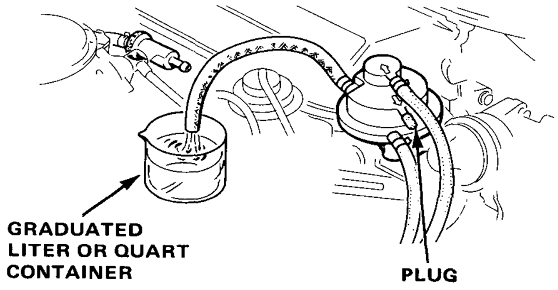
3. *Start the engine, and allow it to idle until pressure* stabilizes, then stop engine.

   Pressure should be:
   17.7–26.5 kPa (0.18–0.27 kg/cm^2, 2.7–3.8 psi)

   - If gauge shows at least 17.7 kPa (0.18 kg/cm^2, 2.7 psi), go on to step 4.
   - If gauge shows less than 17.7 kPa (0.18 kg/cm^2, 2.7 psi), replace pump and re-test.

4. Remove pressure gauge and hold a graduated container under the hose.
5. Start the engine, and allow it to idle for 60 seconds, then stop the engine.
   Fuel volume should be 170 cm^3 (5.7 oz).
   - If fuel volume is less than specified, replace the fuel pump and re-test.

NOTE: Check for a clogged fuel filter and/or fuel line before replacing pump.

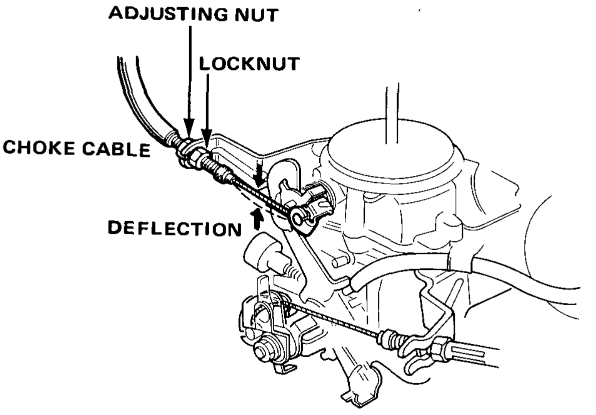


6. Remove plug from fuel pump return fitting and reconnect return line.

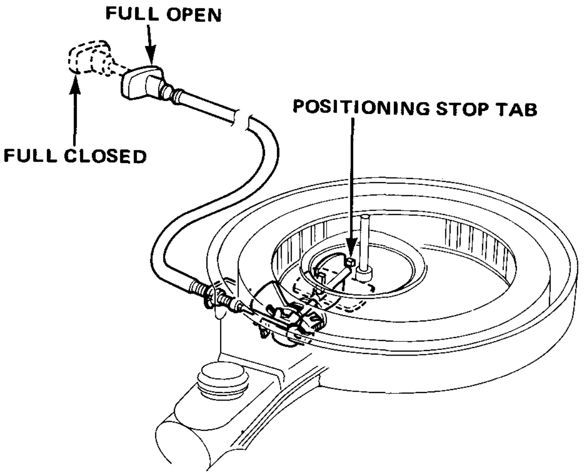
Choke Cable

Adjustment

1. Check that choke control operates smoothly with no evidence of binding or sticking.
   Repair as necessary.



2. Push choke knob all the way in.
   Choke butterfly valve should be fully open.
3. Check cable free-play at choke linkage.
   Cable deflection should be 5–6 mm (0.20–0.24 in.) with fingers pushed on the cable.
4. Pull the knob all the way out.
   Choke butterfly valve should be fully close.



5. If butterfly valve does not fully open, turn adjusting nut until butterfly valve moves off the positioning stop tab. Turn adjusting nut until cable has no deflection. Loosen adjusting nut until cable deflects 5–6 mm (0.20–0.24 in.). Tighten locknut.
6. If butterfly valve does not close properly, inspect for binding of the valve and shaft, and for proper operation of the return spring.

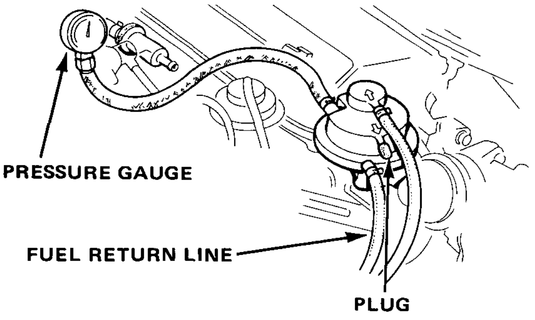
Fuel Pump

Output Test

WARNING **Do not smoke during the test. Keep any open flame away from your work area.**

NOTE: Check for a clogged fuel filter and/or fuel line before checking fuel pump pressure.

1. Disconnect the fuel line at the fuel filter in the engine compartment, and connect a pressure gauge to it as shown.
2. Disconnect the fuel return line at the fuel pump and plug the return fitting with a cap.



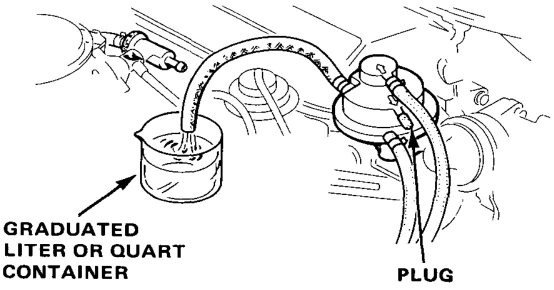
3. *Start the engine, and allow it to idle until pressure* stabilizes, then stop engine.

   Pressure should be:
   17.7–26.5 kPa (0.18–0.27 kg/cm^2, 2.7–3.8 psi)

   - If gauge shows at least 17.7 kPa (0.18 kg/cm^2, 2.7 psi), go on to step 4.
   - If gauge shows less than 17.7 kPa (0.18 kg/cm^2, 2.7 psi), replace pump and re-test.

4. Remove pressure gauge and hold a graduated container under the hose.
5. Start the engine, and allow it to idle for 60 seconds, then stop the engine.
   Fuel volume should be 170 cm^3 (5.7 oz).
   - If fuel volume is less than specified, replace the fuel pump and re-test.

NOTE: Check for a clogged fuel filter and/or fuel line before replacing pump.



6. Remove plug from fuel pump return fitting and reconnect return line.

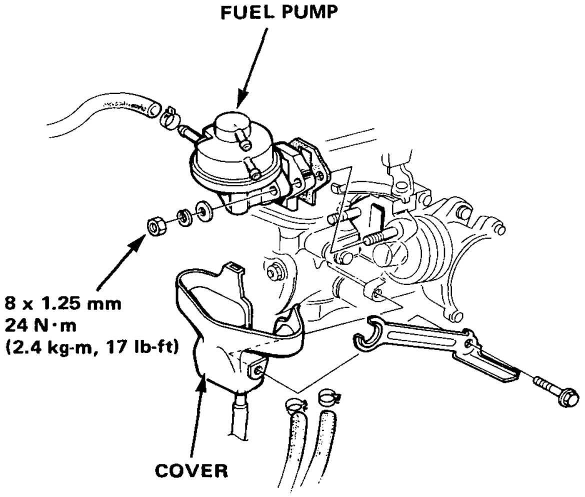
Fuel Pump

Replacement

WARNING **Do not smoke while working on fuel system. Keep open flame away from work area.**

1. Attach fuel line clamps to fuel pump lines.
2. Disconnect fuel lines at fuel pump.

   CAUTION: When disconnecting fuel lines, slide back clamps then twist lines as you pull, to avoid damaging them.



3. Remove fuel pump.
4. Install in the reverse order of removal.

CAUTION: Make sure that the fuel lines are connected properly and securely.

Fuel Filter

Replacement

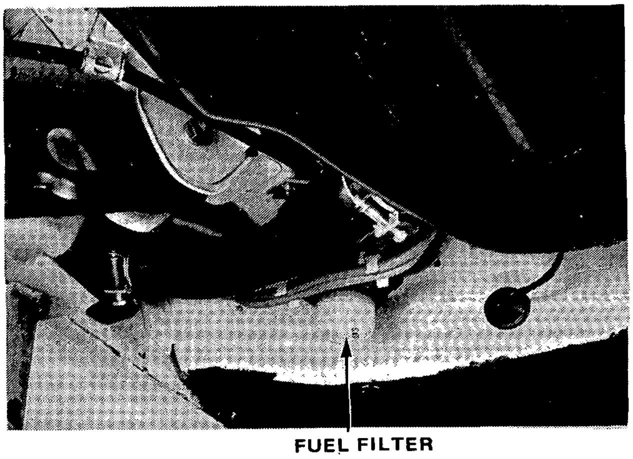
Replace filter every 48,000 Km (30,000 miles)

WARNING

- **Do not smoke while working on fuel system. Keep open flame away from work area.**
- **Block front wheels before jacking up rear of car.**

1. Raise the rear of the car and place the jackstands in proper locations.
2. Remove the fuel filter cover (Except for coupe model).
3. Push in the tab of the fuel filter to release the holder, then remove the filter from its bracket.
4. Attach fuel line clips to the fuel lines and disconnect the lines from the filter.

   CAUTION: To avoid damaging the fuel lines when disconnecting, slide back the clamps then twist the lines as you pull.



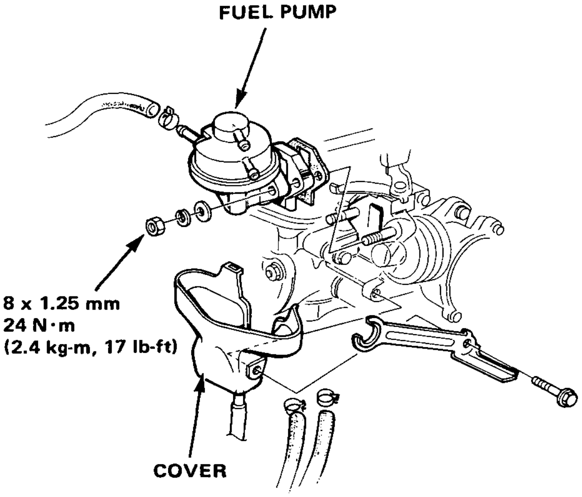
Fuel Pump

Replacement

WARNING **Do not smoke while working on fuel system. Keep open flame away from work area.**

1. Attach fuel line clamps to fuel pump lines.
2. Disconnect fuel lines at fuel pump.

CAUTION: When disconnecting fuel lines, slide back clamps then twist lines as you pull, to avoid damaging them.



3. Remove fuel pump.
4. Install in the reverse order of removal.

CAUTION: Make sure that the fuel lines are connected properly and securely.

Fuel Filter

Replacement

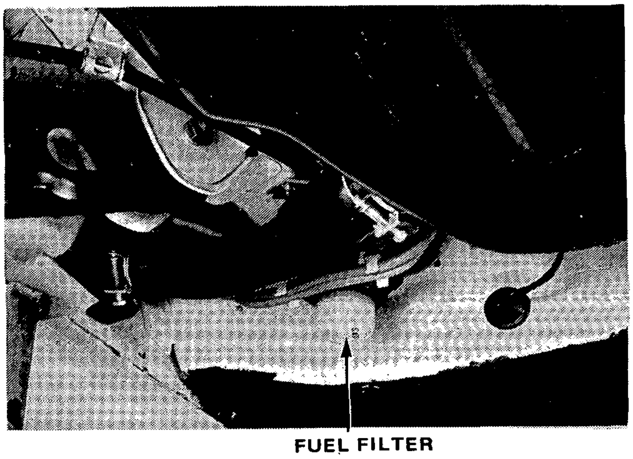
Replace filter every 48,000 Km (30,000 miles)

WARNING

- **Do not smoke while working on fuel system. Keep open flame away from work area.**
- **Block front wheels before jacking up rear of car.**

1. Raise the rear of the car and place the jackstands in proper locations.
2. Remove the fuel filter cover (Except for coupe model).
3. Push in the tab of the fuel filter to release the holder, then remove the filter from its bracket.
4. Attach fuel line clips to the fuel lines and disconnect the lines from the filter.

CAUTION: To avoid damaging the fuel lines when disconnecting, slide back the clamps then twist the lines as you pull.



Fuel Tank/Two-way Valve

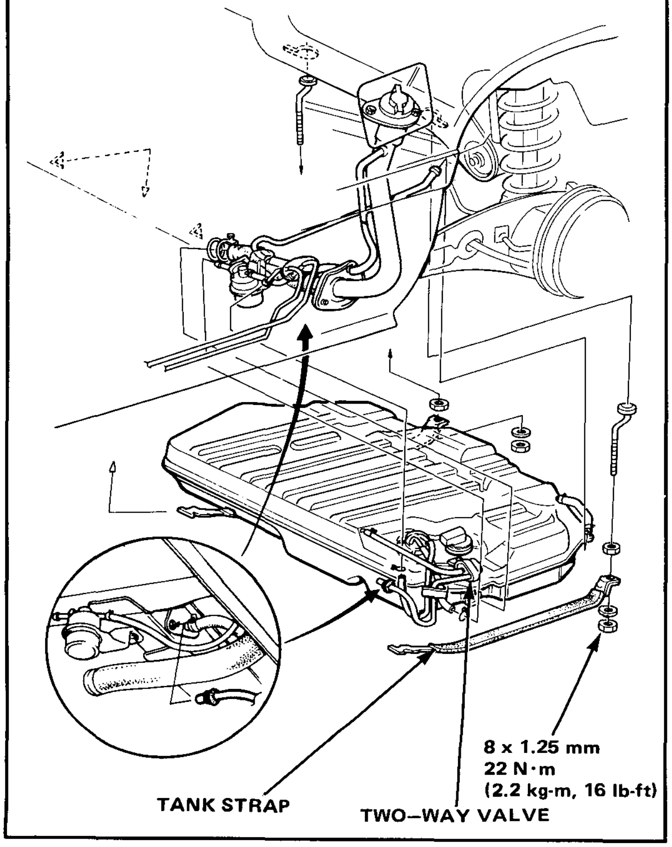
Replacement

WARNING

- **Do not smoke while working on fuel system. Keep open flame away from work area.**
- **Block front wheels before jacking up rear of car.**

1. Raise the rear of the car and place jackstands in the proper locations.
2. Remove the fuel filter cover. (Except for Coupe model)
3. Remove the drain bolt and drain the fuel into an approved container.
4. Disconnect the sending unit connectors.
5. Disconnect the hoses.

   CAUTION: When disconnecting the hoses, slide back the clamps, then twist hoses as you pull, to avoid damaging them.
6. Place a jack, or other support, under the tank.
7. Remove the strap nuts and let the straps fall free.
8. Remove the fuel tank.
9. Install a new washer on the drain bolt, then install parts in the reverse order of removal.



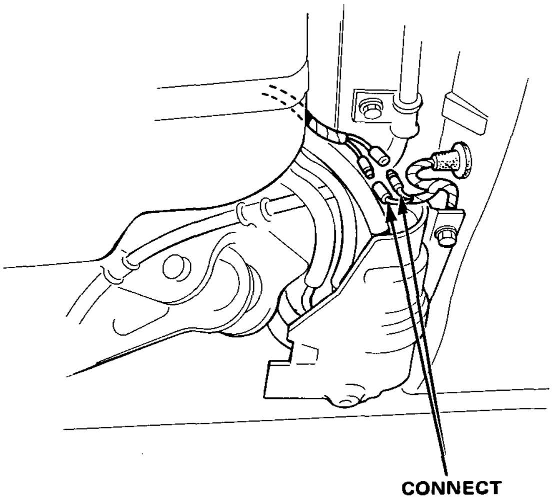
Fuel Gauge

Testing

1. Raise the rear of the car and place jackstands in the proper locations.
2. Check that ignition switch is OFF.
3. Disconnect fuel sending unit connector to check fuel gauge continuity and movement.
4. Connect the yellow/white wire to the black wire using a jumper wire.
5. Turn ignition switch ON and watch the fuel gauge; turn the ignition OFF as soon as gauge needle stops moving. Needle should have moved to FULL mark.

   CAUTION: Do not leave ignition ON for longer than 5 seconds or fuel gauge will be damaged.

   - If gauge needle went to FULL, re-connect sending unit wires and go on to sending unit test on next page.
   - If needle did not go to FULL, check fuse, wiring and connectors. If OK, replace gauge and re-test.

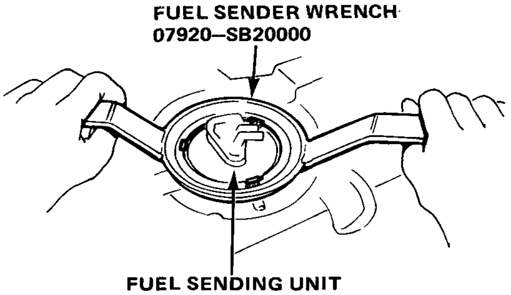


Fuel Gauge Sending Unit

Testing

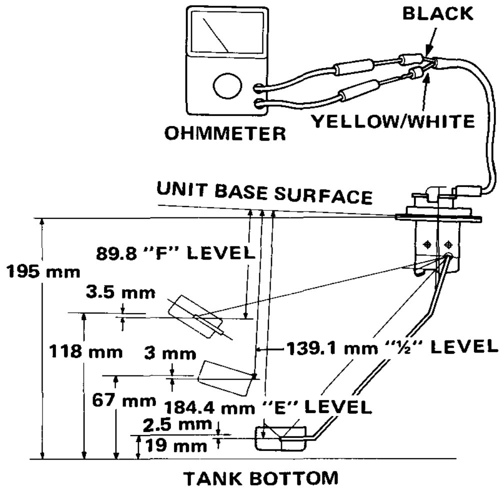
WARNING Do not smoke while working on fuel system. Keep open flame away from work area. Drain fuel only into an approved container.

1. Check that ignition switch is OFF, then disconnect fuel sending unit connector at tank.
2. Drain and remove fuel tank as shown on page 12–7.
3. Remove fuel sending unit from tank.


FUEL SENDER WRENCH
07920–SB20000
FUEL SENDING UNIT

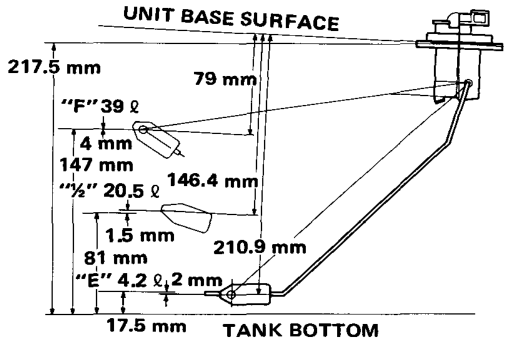
4. Measure resistance between the yellow/white wire and black wire at the 3 float positions shown below.

Coupe

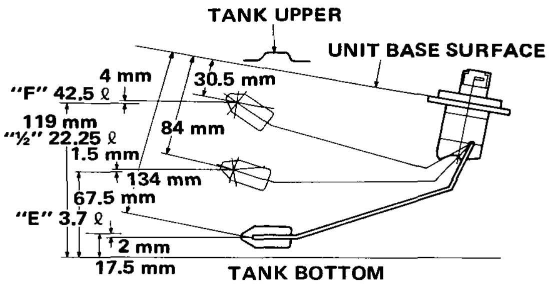

BLACK
OHMMETER
YELLOW/WHITE
UNIT BASE SURFACE
195 mm
89.8 "F" LEVEL
3.5 mm
118 mm
3 mm
139.1 mm "½" LEVEL
67 mm
184.4 mm "E" LEVEL
2.5 mm
19 mm
TANK BOTTOM

FLOAT POSITION	RESISTANCE (OHMS)	FUEL VOLUME (ℓ)
EMPTY	105–110	5
½ FULL	25.5–39.5	20.5
FULL	2–5	39

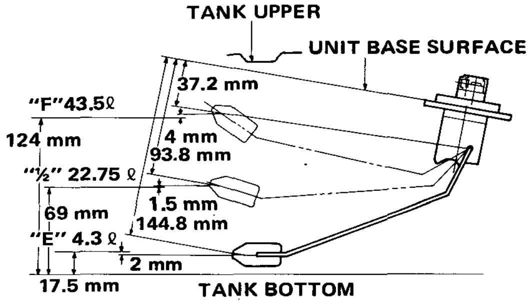
Coupe (Canadian model)


UNIT BASE SURFACE
217.5 mm
79 mm
"F" 39 ℓ
4 mm
147 mm
146.4 mm
"½" 20.5 ℓ
1.5 mm
210.9 mm
81 mm
"E" 4.2 ℓ
2 mm
17.5 mm
TANK BOTTOM

2D H/B


TANK UPPER
UNIT BASE SURFACE
4 mm
30.5 mm
"F" 42.5 ℓ
119 mm
84 mm
"½" 22.25 ℓ
1.5 mm
134 mm
67.5 mm
"E" 3.7 ℓ
2 mm
17.5 mm
TANK BOTTOM

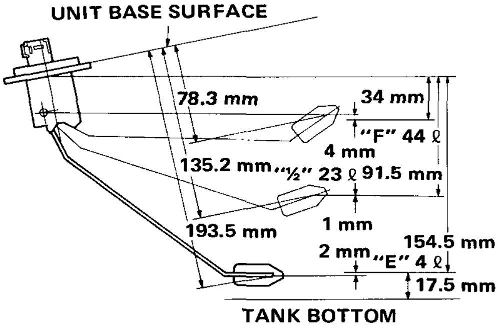
4D


TANK UPPER
UNIT BASE SURFACE
37.2 mm
"F"43.5ℓ
124 mm
4 mm
93.8 mm
"½" 22.75 ℓ
1.5 mm
69 mm
144.8 mm
"E" 4.3 ℓ
2 mm
17.5 mm
TANK BOTTOM

Fuel Gauge Sending Unit
Fuel Line Unit

Testing (cont'd)

4D H/B


UNIT BASE SURFACE
78.3 mm
34 mm
"F" 44 ℓ
4 mm
135.2 mm
"½" 23 ℓ
91.5 mm
193.5 mm
1 mm
154.5 mm
2 mm
"E" 4 ℓ
17.5 mm
TANK BOTTOM

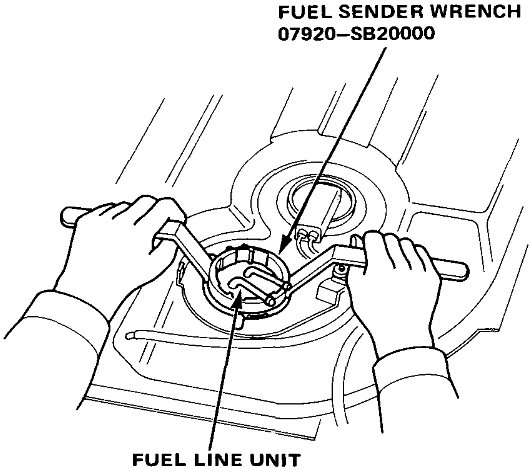
- If resistance is correct, replace fuel gauge and re-test.
- If resistance is incorrect, replace sending unit. Test new unit as described above before installing it.

Fuel Line Unit Replacement

WARNING

- **Do not smoke while working on fuel system. Keep open flame away from work area.**
- **Block front wheels before jacking up rear of car.**

1. Drain and remove fuel tank as shown on page 12-6.
2. Remove fuel line unit from tank.


FUEL SENDER WRENCH
07920–SB20000
FUEL LINE UNIT

Fuel Cut-off Valve

Replacement

[Coupe only]

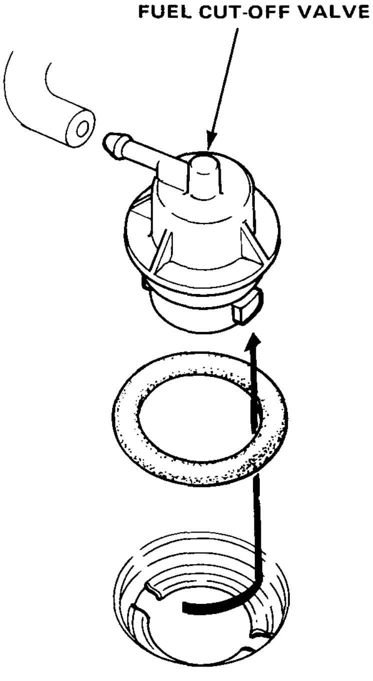
WARNING

- **Do not smoke while working on fuel system. Keep open flame away from work area.**
- **Block front wheels before jacking up rear of car.**

1. Raise rear of car and place jackstands in the proper locations.
2. Place jack under fuel tank.

   CAUTION: Place a flat piece of wood on the jack lifting pad to prevent damage to the fuel tank.

3. Remove the tank mounting nuts and bolts, then lower the tank just enough to gain access to the fuel cut-off valve.
4. Turn the valve ¼ turn (90°), so its lugs are aligned with the slots in the mount, then lift it out.

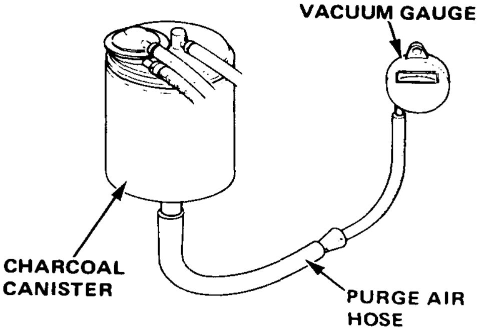

FUEL CUT-OFF VALVE

Evaporative Emission Control System

Charcoal Canister Check

[Canadian and Australian Models]

1. Connect tachometer, start engine and allow to reach normal operating temperature (cooling fan comes on).
2. Remove fuel filler cap.
3. Remove canister purge air hose from frame and connect hose to vacuum gauge as shown.


VACUUM GAUGE
CHARCOAL CANISTER
PURGE AIR HOSE

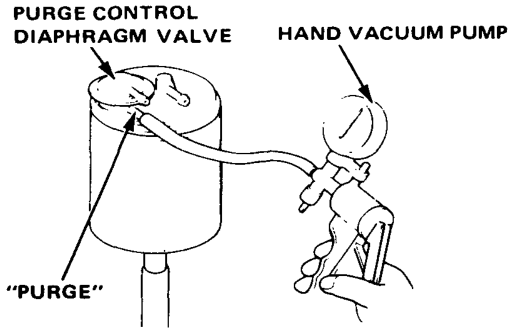
4. Start engine and raise speed to 3500 min^{-1} (rpm).

   Vacuum should appear on gauge within 1 minute.

   - If vacuum appears on gauge in 1 minute, remove gauge and go on to step 9.
   - If no vacuum, disconnect vacuum gauge and reinstall fuel filler cap.

5. Remove charcoal canister and check for signs of damage or defects.
   If defective, replace canister.
   If OK, go on to step 6.
6. Stop engine. Disconnect hose from canister "PCV" fitting.
   Connect hand vacuum pump to canister "PURGE" fitting as shown, and draw vacuum.

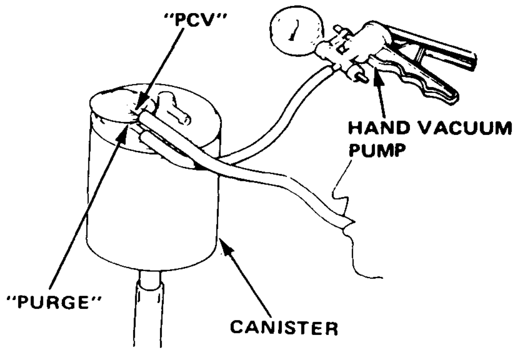
   Vacuum should remain steady.


PURGE CONTROL DIAPHRAGM VALVE
HAND VACUUM PUMP
"PURGE"

- If vacuum remains steady, go on to step 7.
- If vacuum drops, replace canister and re-test.

7. Draw air from canister "PCV" fitting as shown.

   "PURGE" side vacuum should drop to zero.


"PCV"
HAND VACUUM PUMP
"PURGE"
CANISTER

   - If "PURGE" side vacuum does not drop to zero, replace canister and re-test.
   - If "PURGE" side vacuum drops to zero, disconnect vacuum pump, and go on to step 8.

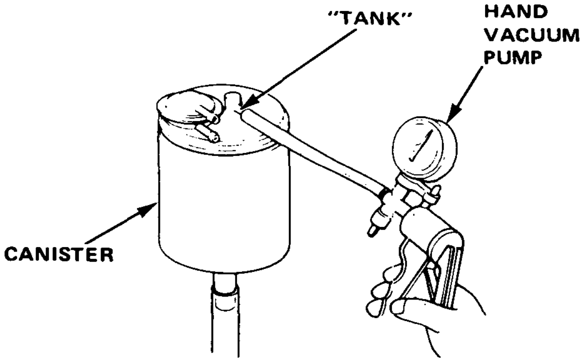
8. Connect hand vacuum pump to canister "PCV" fitting and draw vacuum.

   Vacuum should remain steady.

   - If vacuum remains steady, go on to step 9.
   - If vacuum drops, replace canister and re-test.

9. Connect vacuum pump to "TANK" fitting as shown, and draw vacuum.

   There should not be any vacuum.


"TANK"
HAND VACUUM PUMP
CANISTER

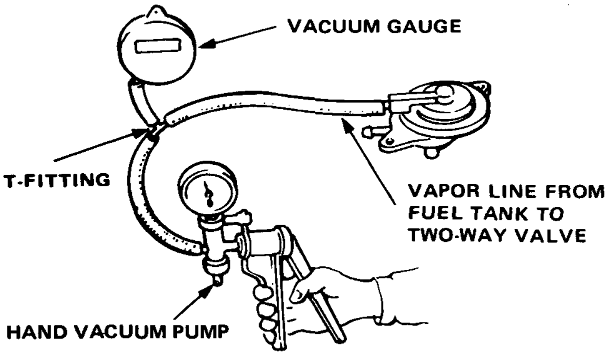
   - If no vacuum, reinstall fuel filler cap and canister, test complete.
   - If there is vacuum, replace canister and re-test.

Two-way Valve Check

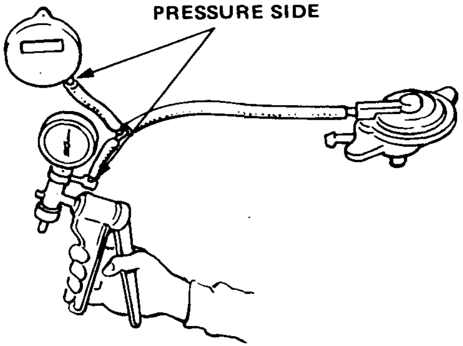
[Canadian model]

1. Remove the filler cap.

2. Remove vapor line from the fuel tank and connect to T-fitting from vacuum gauge and vacuum pump as shown.



3. Slowly draw a vacuum while watching the gauge. Vacuum should stabilize at 5 to 15 mmHg (0.2 to 0.6 in.Hg).
   - If vacuum stabilizes momentarily (two-way valve opens) between 5 and 15 mmHg (0.2 and 0.6 in.Hg), go on to Step 4.
   - If vacuum stabilizes (valve opens) below 5 mmHg (0.2 in.Hg) or above 15 mmHg (0.6 in.Hg), install new valve and re-test.
4. Move hand pump hose from vacuum to pressure fitting, and move vacuum gauge hose from vacuum to pressure side as shown.



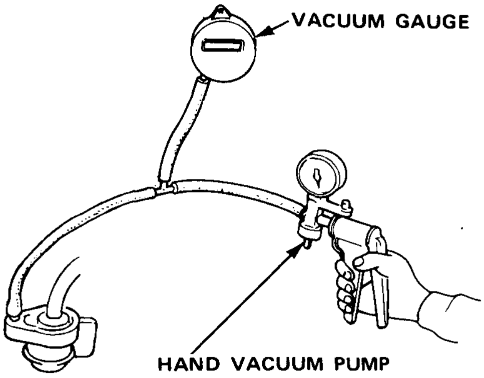
5. Slowly pressurize the vapor line while watching the gauge.

   Pressure should stabilize at 25 to 55 mmHg (1.0 to 2.2 in.Hg).
   - If pressure momentarily stabilizes (valve opens) at 25 to 55 mmHg (1.0 to 2.2 in.Hg), the valve is OK.
   - If pressure stablizes below 25 mmHg (1.0 in.Hg) or above 55 mmHg (2.2 in.Hg), install a new valve and re-test.

[Other model]

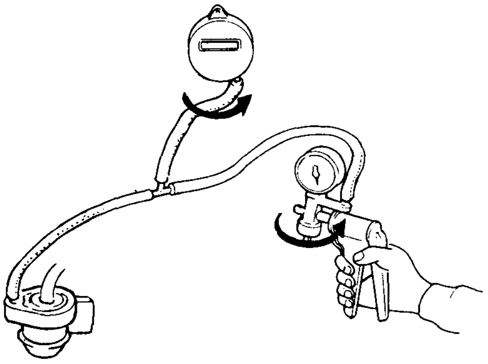
1. Remove the fuel filler cap.

2. Remove the vapor line from the canister or frame, and connect to a T-fitting from the vacuum gauge and the vacuum pump as shown.



3. Slowly draw a vacuum while watching the gauge. Vacuum should stabilize at 15 to 30 mmHg (0.6 to 1.2 in.Hg).
   - If vacuum stabilizes momentarily (Two-way Valve opens) between 15 and 30 mmHg (0.6 and 1.2 in.Hg), go on step 4.
   - If vacuum stabilizes (valve opens) below 15 mmHg or above 30 mmHg (1.2 in.Hg), install new valve and retest.

4. Move hand pump hose from vacuum to pressure fitting, and move vacuum gauge hose from vacuum to pressure side as shown.

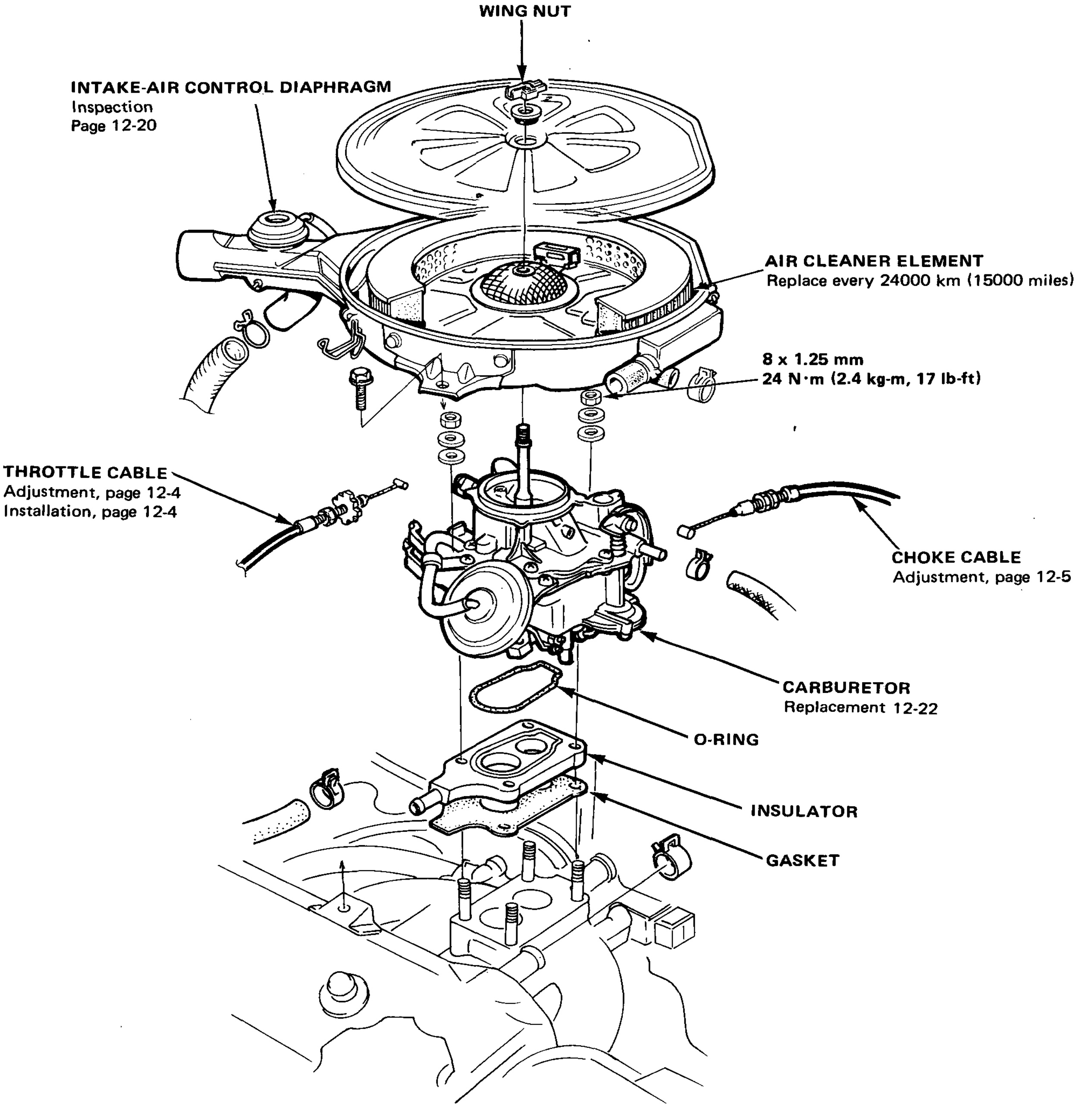


5. Slowly pressurize the vapor line while watching the gauge.
   Pressure should stabilize at 5 to 15 mmHg (0.2 to 0.6 in.Hg).
   - If pressure momentarily stabilizes (Valve opens) at 5 to 15 mmHg (0.2 to 0.6 in.Hg), the valve is OK.
   - If pressure stabilizes below 5 mmHg (0.2 in.Hg) or above 15 mmHg (0.6 in.Hg), install a new valve and re-test.

Carburetor

Index

NOTE: Use new gaskets and O-rings whenever reassembling.



WING NUT
INTAKE-AIR CONTROL DIAPHRAGM
Inspection
Page 12-20
AIR CLEANER ELEMENT
Replace every 24000 km (15000 miles)
8 x 1.25 mm
24 N·m (2.4 kg-m, 17 lb-ft)
THROTTLE CABLE
Adjustment, page 12-4
Installation, page 12-4
CHOKE CABLE
Adjustment, page 12-5
CARBURETOR
Replacement 12-22
O-RING
INSULATOR
GASKET

Idle Speed and Mixture

Adjustment

[Except Canadian model]

NOTE: The following inspections and adjustments should be completed before measurement.

Air cleaner element
Ignition timing and control system
Spark plugs
Idle speed
Valve clearance
Intake air control system
PCV valve

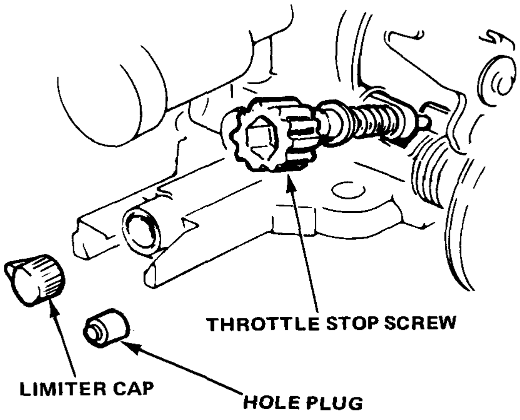
WARNING Do not smoke during this procedure. Keep any open flame away from your work area.

CO Meter Method

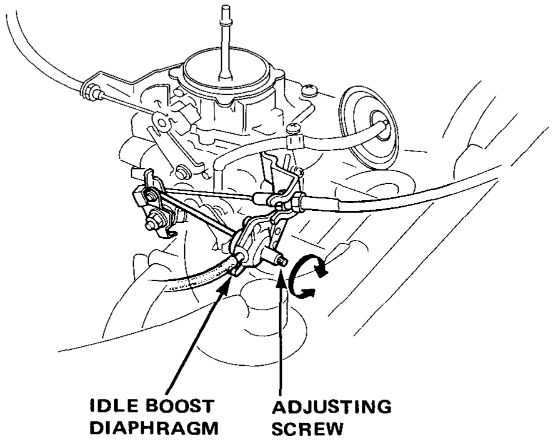
1. Warm-up and calibrate the NDIR CO Meter in accordance with the manufacturer's recommended procedures.
2. Insert exhaust gas sampling probe into the tail pipe at least 40 cm (16-inches).
3. Check specification for idle speed and CO with the headlights OFF (on swedish model: on) and cooling fan OFF.

Transmission	Idle Speed
Manual Transmission	750 ± 50 min^{-1} (rpm)
Hondamatic (in gear)	700 ± 50 min^{-1} (rpm)

	Specified CO%
Swedish and Australian models	below 2.0 %
Swiss model	0.5–2.0 %
Other models	below 3.0%



4. If unable to obtain this reading with the limiter cap in place, remove the cap. Adjust the mixture adjusting screw to obtain specified CO%, recheck the engine idle speed and reset if necessary. Finally recheck the CO reading and replace the limiter cap. If unable to obtain a CO reading of specified % by this procedure, check the engine tune-up condition.
5. If car is equipped with air conditioning, recheck idle speed with A/C on: Speed should still be within specification.
   If the speed is outside the spec, remove the rubber cap on the idle boost diaphragm and adjust by turning adjusting screw.



If the idle boost diaphragm does not operate with the air conditioner on, disconnect the hose from the idle boost diaphragm and check for vacuum.

- If there is vacuum, replace the idle boost diaphragm.
- If there is no vacuum, check for voltage at the idle control solenoid valve.
  - If there is no voltage, check the wiring and fuse, and repair or replace as necessary.
  - If there is voltage, disconnect the hose routed to the intake manifold at the idle control solenoid valve and check for vacuum.
    - If there is vacuum, replace the idle control solenoid valve.
    - If there is no vacuum, check the vacuum line to the intake manifold.

(cont'd)

Idle Speed and Mixture

Adjustment (cont'd)

Idle-Drop Method

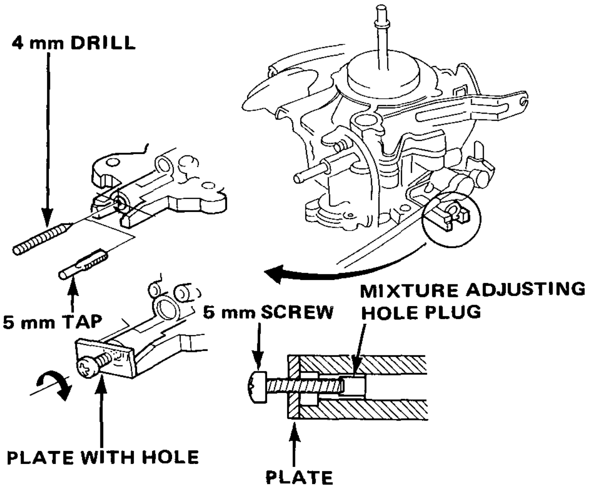
1. Start the engine and warm up to the normal operating temperature.
2. Remove the limiter cap.
3. With the headlights OFF (on Swedish model: on) and the cooling fan OFF, adjust the engine speed and mixture for best idle at 820 (1500 Civic), 800 (1300 Civic) min^{-1} (rpm) (Manual Transmission in neutral) or 750 (1500 Civic), 730 (1300 Civic) min^{-1} (rpm) (Hondamatic in gear).
4. Turn the mixture adjusting screw clockwise until engine speed drops to 750 min^{-1} (rpm) (Manual Transmission in neutral) or 700 min^{-1} (rpm) (Hondamatic in gear).
5. Replace the limiter cap.

[For Canadian model]

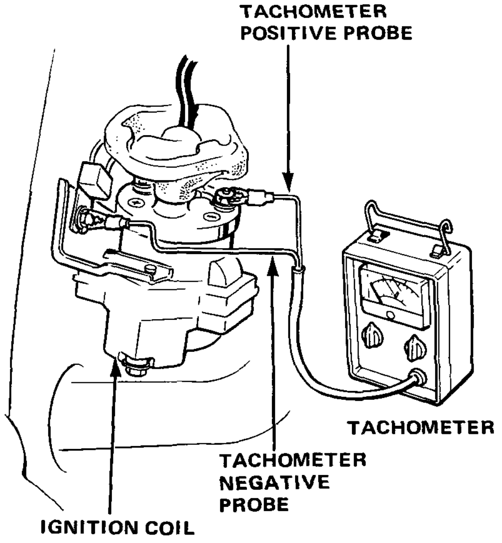
WARNING **Do not smoke during this procedure. Keep any open flame away from your work area.**

CO Meter Method

1. Remove air cleaner.
2. Disconnect vacuum tubes, fuel line, throttle cable and choke cable from carburetor.
3. Remove carburetor.
4. To remove the mixture adjusting screw hole plug;


4 mm DRILL
5 mm TAP
5 mm SCREW
MIXTURE ADJUSTING HOLE PLUG
PLATE WITH HOLE
PLATE

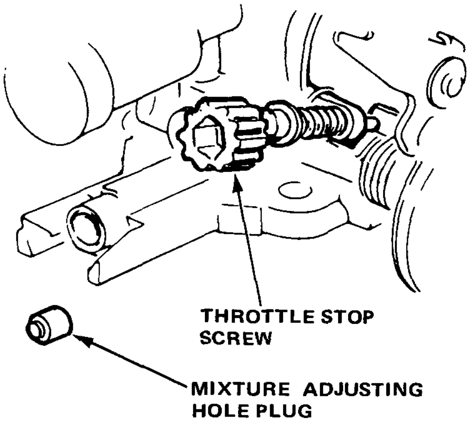
5. Replace the carburetor, vacuum tubes, fuel line throttle cable and choke cable.
6. Install air cleaner.
7. Start engine and warm up to normal operating temperature; the cooling fan will come on.
8. Connect tachometer.


TACHOMETER POSITIVE PROBE
TACHOMETER
TACHOMETER NEGATIVE PROBE
IGNITION COIL

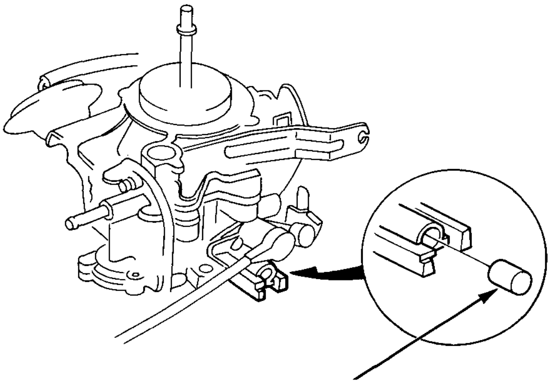
9. Warm-up and calibrate the NDIR CO Meter in accordance with the manufacturer's recommended procedures.
10. Insert exhaust gas sampling probe into the tail pipe at least 40 cm.
11. Check specification for idle speed and CO with the headlights OFF and cooling fan OFF.

Transmission	Idle Speed
Manual Transmission	750 ± 50 min^{-1} (rpm)
Hondamatic (in gear)	700 ± 50 min^{-1} (rpm)

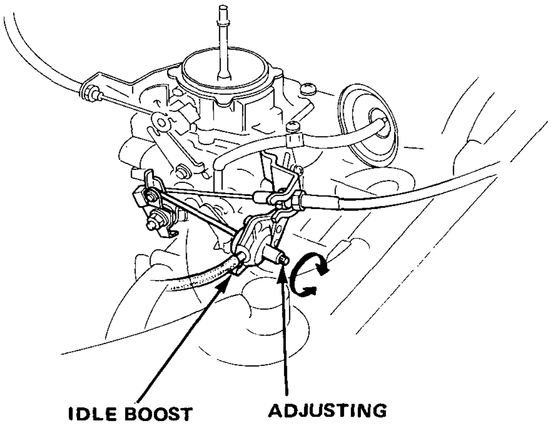
Specified CO%	below 2.0%


THROTTLE STOP SCREW
MIXTURE ADJUSTING HOLE PLUG

12. Adjust the mixture adjusting screw to obtain specified CO%, recheck the engine idle speed and reset if necessary. Finally recheck the CO reading and replace the mixture adjusting hole plug. If unable to obtain a CO reading of specified % by this procedure, check the engine tune-up condition.


MIXTURE ADJUSTING HOLE PLUG

13. If car is equipped with air conditioning, recheck idle speed with A/C on: Speed should still be within specification.
    If the speed is outside the spec, remove the rubber cap on the idle boost diaphragm and adjust by turning adjusting screw.

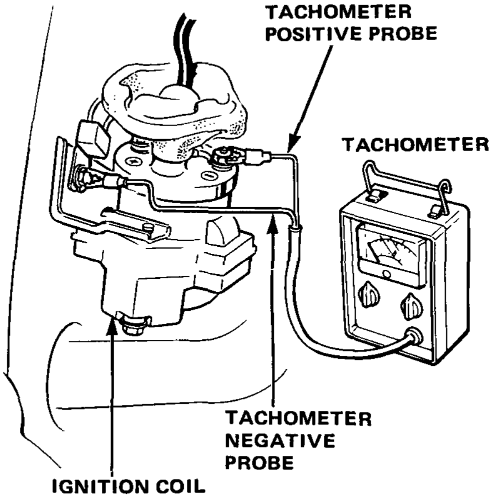

IDLE BOOST DIAPHRAGM
ADJUSTING SCREW

If the idle boost diaphragm does not operate with the air conditioner on, go on to idle boost diaphragm check on page 12-13.

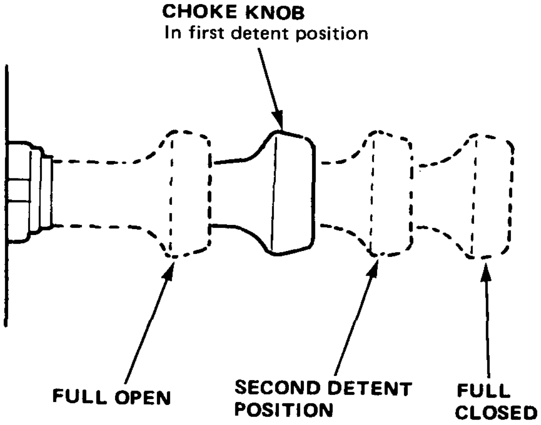
Choke Fast Idle

Adjustment

1. Remove rubber boot from ignition coil. Connect tachometer positive probe to (–) terminal on ignition coil. Connect tachmeter negative probe to chassis ground.


TACHOMETER POSITIVE PROBE
TACHOMETER
TACHOMETER NEGATIVE PROBE
IGNITION COIL

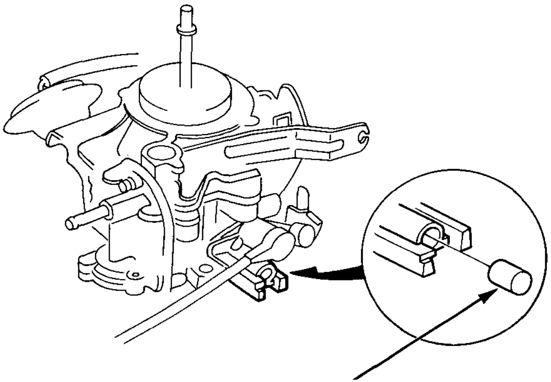
2. Start engine and allow to warm up.
3. Place choke control knob in first detent position.


CHOKE KNOB
In first detent position
FULL OPEN
SECOND DETENT POSITION
FULL CLOSED

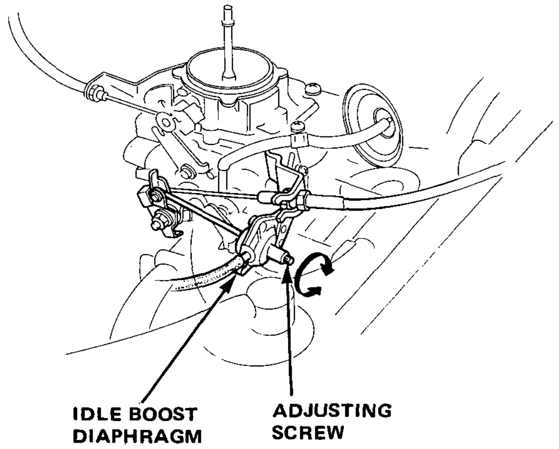
Fast idle should be: 1,500–2,500 min^{-1} (rpm)

(cont'd)

12. Adjust the mixture adjusting screw to obtain specified CO%, recheck the engine idle speed and reset if necessary. Finally recheck the CO reading and replace the mixture adjusting hole plug. If unable to obtain a CO reading of specified % by this procedure, check the engine tune-up condition.


MIXTURE ADJUSTING HOLE PLUG

13. If car is equipped with air conditioning, recheck idle speed with A/C on: Speed should still be within specification.
    If the speed is outside the spec, remove the rubber cap on the idle boost diaphragm and adjust by turning adjusting screw.

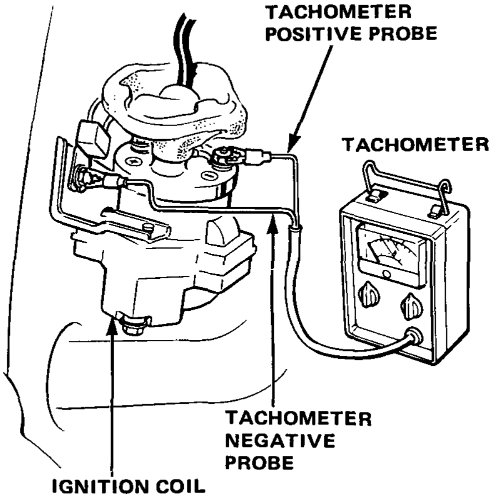

IDLE BOOST DIAPHRAGM
ADJUSTING SCREW

If the idle boost diaphragm does not operate with the air conditioner on, go on to idle boost diaphragm check on page 12-13.

Choke Fast Idle

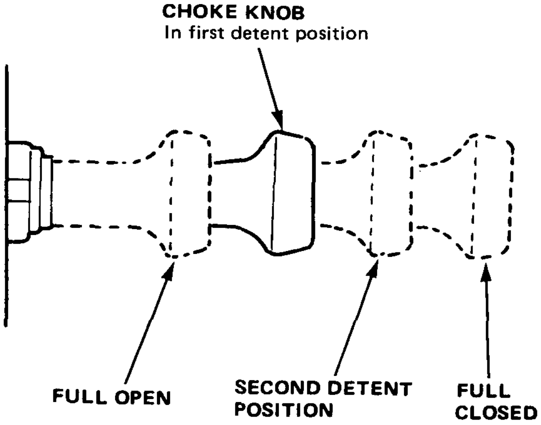
Adjustment

1. Remove rubber boot from ignition coil. Connect tachometer positive probe to (–) terminal on ignition coil. Connect tachmeter negative probe to chassis ground.


TACHOMETER POSITIVE PROBE
TACHOMETER
TACHOMETER NEGATIVE PROBE
IGNITION COIL

2. Start engine and allow to warm up.

3. Place choke control knob in first detent position.


CHOKE KNOB
In first detent position
FULL OPEN
SECOND DETENT POSITION
FULL CLOSED

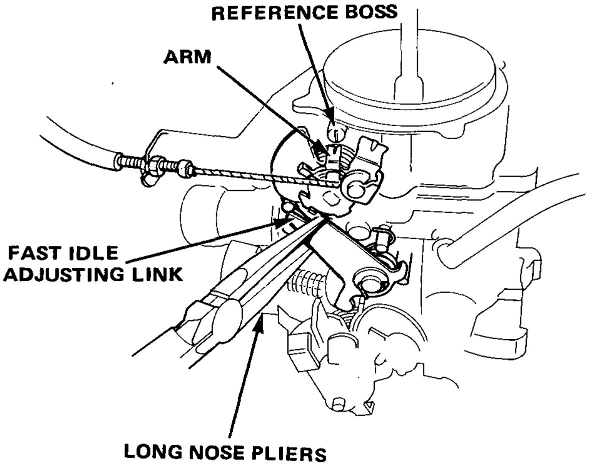
Fast idle should be: 1,500–2,500 min^{-1} (rpm)

(cont'd)

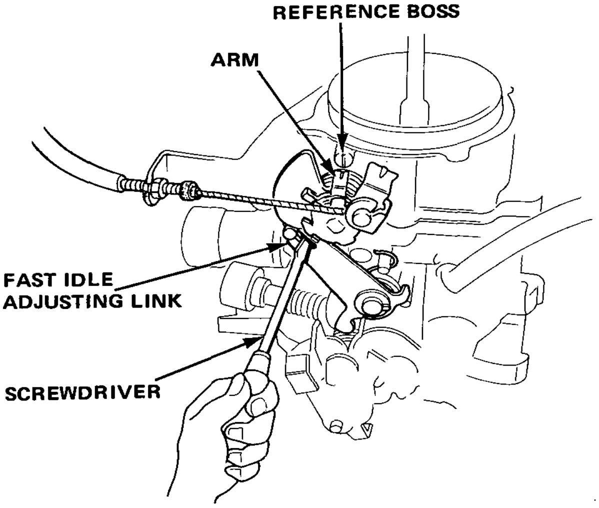
Choke Fast Idle

Adjustment (cont'd)

- If rpm is too high, use long nose pliers to narrow the slot in the fast idle adjusting link. Make the adjustment in small increments.


REFERENCE BOSS
ARM
FAST IDLE ADJUSTING LINK
LONG NOSE PLIERS

- If rpm is too low, insert a screwdriver in the fast idle adjusting link slot and widen the slot. Make adjustments in small increments.


REFERENCE BOSS
ARM
FAST IDLE ADJUSTING LINK
SCREWDRIVER

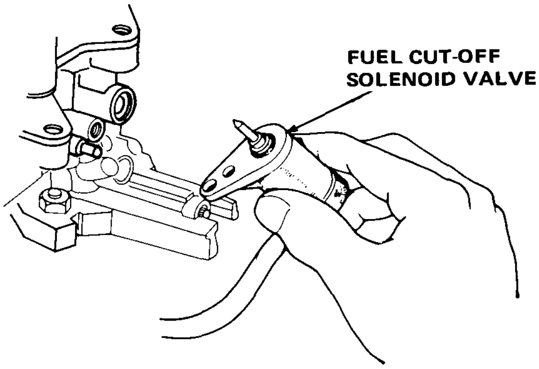
Fuel Cut-off Solenoid Valve

Inspection

1. Place a clean shop towel around the solenoid valve, to soak up any gasoline, then loosen the screws and remove the solenoid valve.

WARNING

- **Wipe up any spilled gasoline before testing.**
- **If cut-off valve is removed for testing, be sure you ground it to prevent sparking or fire when the key is turned on.**


FUEL CUT-OFF SOLENOID VALVE

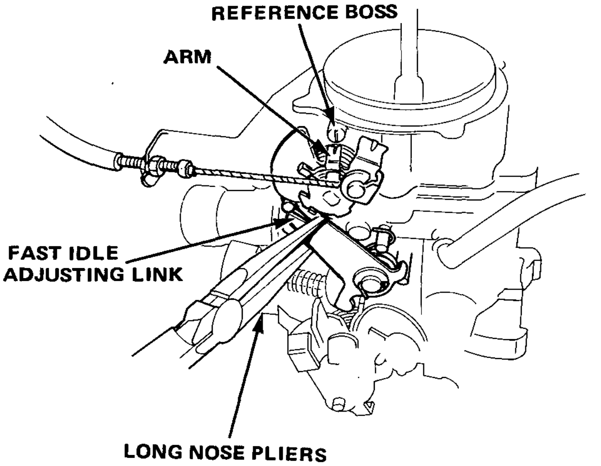
2. Ground the valve as far from the carburetor as possible and turn on the ignition while you watch the valve needle.

   - If the needle retracts, the valve is OK.
   - If the needle doesn't retract, check for voltage at the solenoid.
     — If voltage is present, check the fuse and wiring.

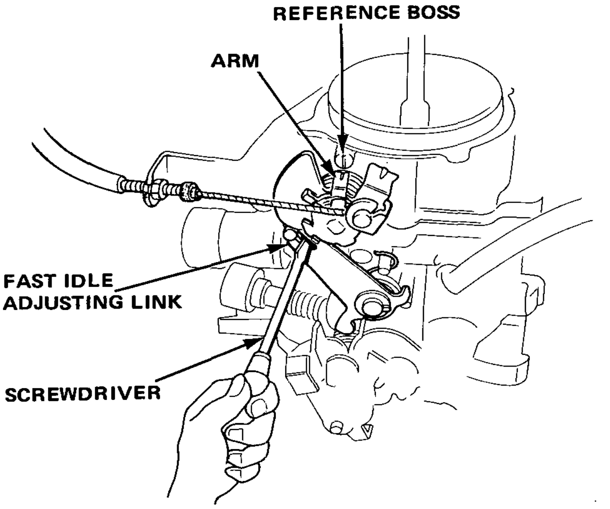
Choke Fast Idle

Adjustment (cont'd)

- If rpm is too high, use long nose pliers to narrow the slot in the fast idle adjusting link. Make the adjustment in small increments.


REFERENCE BOSS
ARM
FAST IDLE ADJUSTING LINK
LONG NOSE PLIERS

- If rpm is too low, insert a screwdriver in the fast idle adjusting link slot and widen the slot. Make adjustments in small increments.


REFERENCE BOSS
ARM
FAST IDLE ADJUSTING LINK
SCREWDRIVER

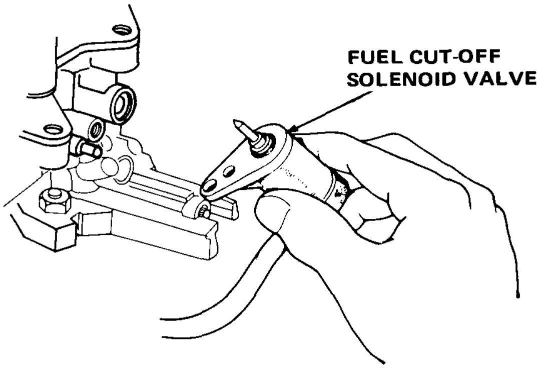
Fuel Cut-off Solenoid Valve

Inspection

1. Place a clean shop towel around the solenoid valve, to soak up any gasoline, then loosen the screws and remove the solenoid valve.

WARNING

- **Wipe up any spilled gasoline before testing.**
- **If cut-off valve is removed for testing, be sure you ground it to prevent sparking or fire when the key is turned on.**


FUEL CUT-OFF SOLENOID VALVE

2. Ground the valve as far from the carburetor as possible and turn on the ignition while you watch the valve needle.
   - If the needle retracts, the valve is OK.
   - If the needle doesn't retract, check for voltage at the solenoid.
     - — If voltage is present, check the fuse and wiring.

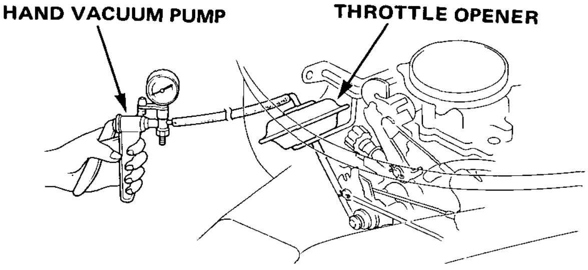
Dashpot

Inspection

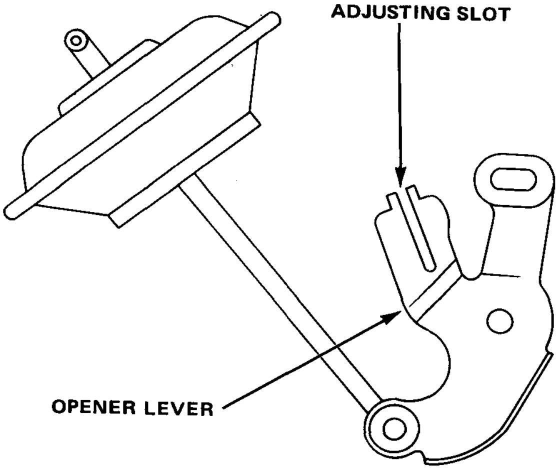
1. Connect a tachometer, start the engine and allow it to reach normal operating temperature (cooling fan comes on).

2. Disconnect vacuum hose from the throttle opener, connect a hand vacuum pump to the opener and apply 400 mmHg (16 in.Hg) vacuum.

   Engine speed should rise to 2,600–3,700 min^{-1} (rpm) within 1 minute.



- If the engine speed rises to 2,600–3,700 min^{-1} (rpm), go on to step 3.
- If rpm is too LOW: Widen the adjusting slot in the opener lever with a screwdriver.



- If the rpm is too HIGH: Narrow the adjusting slot in the lever with long nose pliers.
- If the rpm cannot be adjusted, or the diaphragm will not hold vacuum, replace the throttle opener and re-test.

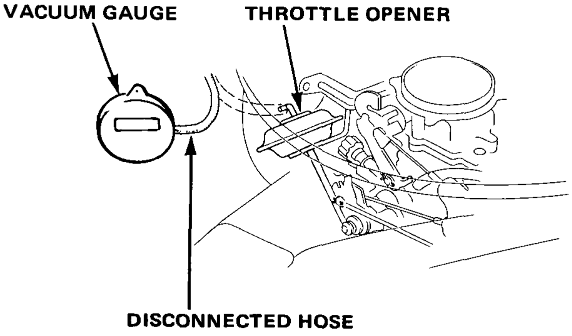
3. Disconnect the vacuum pump and reconnect the hose. Raise the engine speed to 3500 rpm and maintain for 2 to 3 seconds. Release the throttle suddenly, and watch how long the throttle opener arm takes to fully extend.

   Return time should be 1 to 4 seconds.

   - If the engine speed returns to idle in 1 to 4 seconds with the arm fully extended, go on to throttle opener check on page 12-18.
   - If return to idle takes less than 1 second, go on to step 4.
   - If the throttle takes longer than 4 seconds to return, go on to step 5.

4. Disconnect the hose from the throttle opener and connect a vacuum gauge to the disconnected hose. Start and run the engine at 4000 rpm.

   Vacuum should be at least 30 mmHg (1.2 in.Hg) at 4000 rpm.



- If vacuum is at least 30 mmHg (1.2 in.Hg) at 4000 rpm, replace the control valve (Swiss, Swedish and Australian models of manual transmission and Canadian model) or dashpot check valve (other models) and re-test.
- If vacuum is below 30 mmHg (1.2 in.Hg), check for vacuum at the carburetor port.
  - If there is no vacuum, clean the carburetor port and re-test.
  - If vacuum is present, check the vacuum line for leaks, blockage or disconnected hose and re-test.

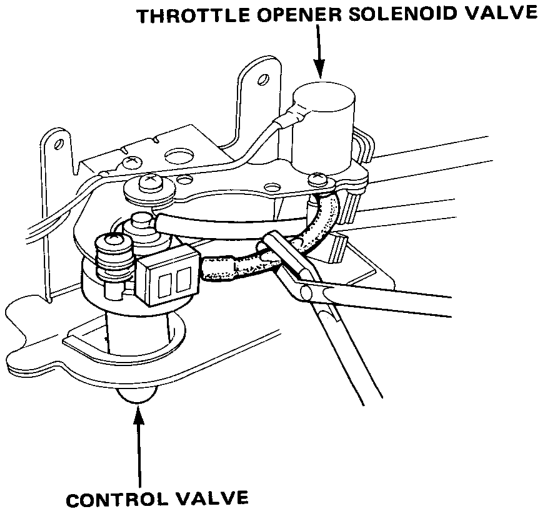
(cont'd)

Dashpot

Inspection (cont'd)

(Only Swiss, Swedish and Australian Models of Manual Transmission and Canadian Model.)

5. Pinch the hose between the throttle opener solenoid valve and control valve and repeat step 3.
   - If there is no change, replace the control valve and repeat step 3.
   - If the throttle return time is within the limits with hose pinched, check for voltage at the throttle opener solenoid valve (yellow/white wire of the control box connector)
     - If voltage is present, replace the speed sensor and re-test.
     - If there is no voltage, replace the throttle opener solenoid valve and re-test.



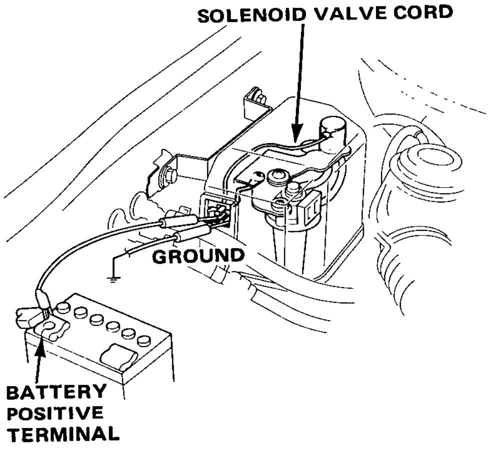
Throttle Opener

Inspection

(Only Swiss, Swedish and Australian Models of Manual Transmission and Canadian Model.)

NOTE: Dashpot check should be completed before testing.

1. Start the engine and allow it to reach normal operating temperature (cooling fan comes on).
2. Bypass the speed sensor by jumping the battery (+) voltage to the yellow/white wire at the control box connector.
3. Raise the engine speed to 3,500 min^{-1} (rpm) and release the throttle. The return time to the idle should be longer than the dashpot check time (1–4 seconds) but not longer than 6 seconds.



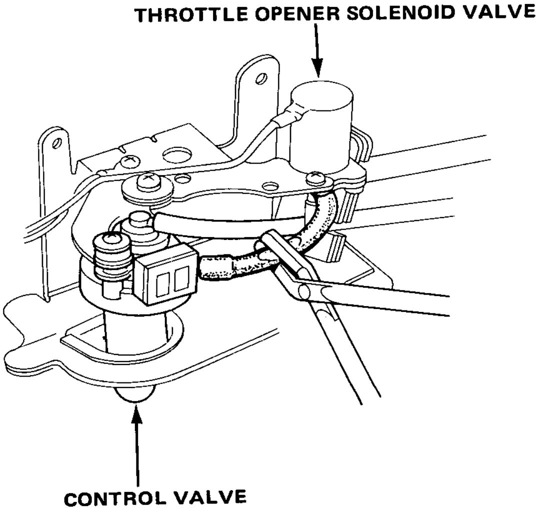
   - If the return time to the idle takes longer than the time you recorded for the dashpot system, but not longer than 6 seconds, the throttle opener is OK. Go on to step 5.
   - If the return time is longer than 6 seconds, replace the throttle control valve and retest.
   - If the return time is less than the time you recorded for the dashpot system, go on to step 4.
4. Remove the vacuum line connecting the throttle opener solenoid valve to the control valve. Check for vacuum at the throttle opener solenoid valve.
   - If vacuum is present, replace the control valve and re-test.
   - If no vacuum, replace the throttle opener solenoid valve and re-test.
5. Disconnect the battery jumper and stop the engine.

Dashpot

Inspection (cont'd)

(Only Swiss, Swedish and Australian Models of Manual Transmission and Canadian Model.)

5. Pinch the hose between the throttle opener solenoid valve and control valve and repeat step 3.
   - If there is no change, replace the control valve and repeat step 3.
   - If the throttle return time is within the limits with hose pinched, check for voltage at the throttle opener solenoid valve (yellow/white wire of the control box connector)
     - If voltage is present, replace the speed sensor and re-test.
     - If there is no voltage, replace the throttle opener solenoid valve and re-test.



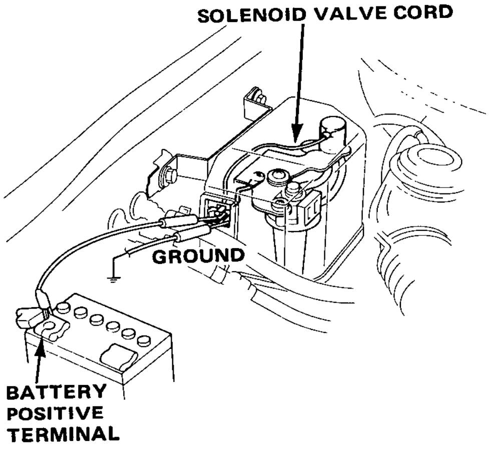
Throttle Opener

Inspection

(Only Swiss, Swedish and Australian Models of Manual Transmission and Canadian Model.)

NOTE: Dashpot check should be completed before testing.

1. Start the engine and allow it to reach normal operating temperature (cooling fan comes on).
2. Bypass the speed sensor by jumping the battery (+) voltage to the yellow/white wire at the control box connector.
3. Raise the engine speed to 3,500 min^{-1} (rpm) and release the throttle. The return time to the idle should be longer than the dashpot check time (1—4 seconds) but not longer than 6 seconds.



   - If the return time to the idle takes longer than the time you recorded for the dashpot system, but not longer than 6 seconds, the throttle opener is OK. Go on to step 5.
   - If the return time is longer than 6 seconds, replace the throttle control valve and retest.
   - If the return time is less than the time you recorded for the dashpot system, go on to step 4.
4. Remove the vacuum line connecting the throttle opener solenoid valve to the control valve. Check for vacuum at the throttle opener solenoid valve.
   - If vacuum is present, replace the control valve and re-test.
   - If no vacuum, replace the throttle opener solenoid valve and re-test.
5. Disconnect the battery jumper and stop the engine.

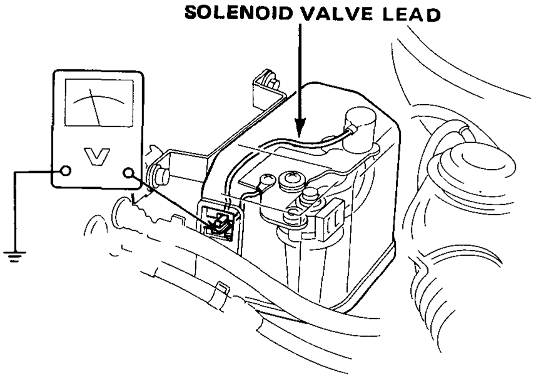
Speed Senor

Inspection

(Only Swiss, Swedish and Australian Models of Manual Transmission and Canadian model.)

WARNING Block rear wheels before jacking up front of car.

1. Jack up front of car and place jack stands in proper locations. Set the parking brake.
2. Connect voltmeter positive probe to the yellow/white terminal of the control box connector. Connect voltmeter negative prove to chassis ground.



3. Start the engine. Place the shift or selector lever in second or L position and accelerate slowly, while observing the voltmeter.

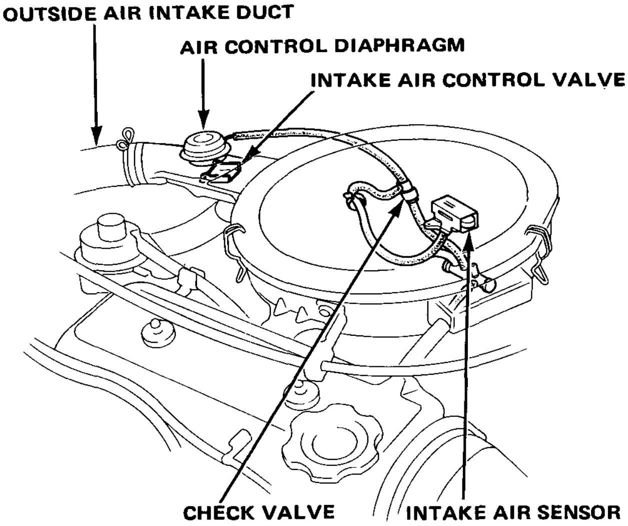
   The voltmeter should show battery voltage above 20 km/h, and no voltage below 10 km/h.
   - If there is no voltage below approximately 10 km/h, and there is battery voltage above approximately 20 km/h, the speed sensor is OK.
   - If the voltmeter readings do not correspond to the above km/h range, replace the speed sensor and re-test.
   - If there is no voltage during speed sensor test, go on to step 4.
4. Check for loose or improper wire connections, faulty fuse or speed sensor. Replace or repair as necessary and re-test.

Intake Air Control

Inspection

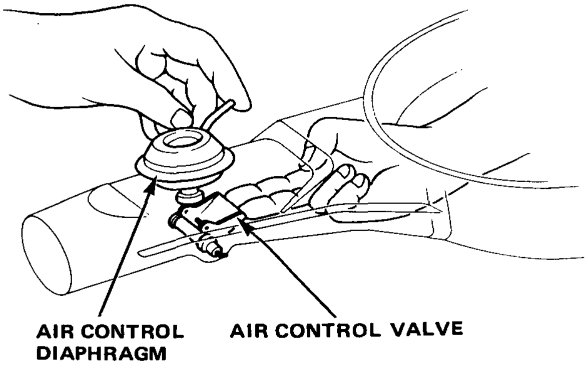
Cold engine inspection

1. Remove air cleaner cover and filter element. Disconnect the air intake and hot air ducts.
2. With the engine cold, start the engine for about 5 seconds and stop. Air control valve should rise on start up and remain fully open for at least 3 seconds after stopping engine.



- If valve rises, intake air control is OK; reinstall filter element and air cleaner cover. Connect the air intake and hot air ducts. Go on to step 1 for hot engine inspection.
- If valve does not rise, check to see if valve is binding. If valve still fails to rise, or fails to stay up for 3 seconds after cold engine cranking test, go on to step 3.

3. Disconnect and plug hose leading to intake air sensor.
4. Crank starter for approximately 5 seconds.
   - If the air control valve does not rise or stay open for at least 3 seconds, proceed to Step 5.
   - If valve rises and stays up for at least 3 seconds replace the air bleed valve, and re-test (steps 2 thru 4).
5. Disconnect vacuum hose from air control diaphragm.
6. Raise air control valve manually and while blocking the inlet pipe, release the valve.



   - If the valve stays up, replace check valve and re-test.
   - If the valve drops to the closed position, replace the air control diaphragm and re-test.
7. Reinstall filter element and air cleaner cover.

Hot engine inspection

NOTE: As the outside air temperature drops, the bimetal spring in the intake air sensor closes, causing the air control valve to rise and allowing pre-heated air into the air cleaner; consistent intake air temperature (approximately 100° F) is maintained this way.

1. With engine running and cooling fan on, remove air cleaner cover and filter element and immediately check control valve position.

   The air control valve should be down.

   - If the control valve has dropped down to fully close the hot air intake duct: stop engine, reinstall filter element and air cleaner cover. Test is complete.
   - If control valve has not dropped to the fully closed position, go to step 2.
2. Disconnect the vacuum hose to the air control diaphragm.
   - If the control valve now closes, replace the intake air sensor and re-test.
   - If the control valve does not close, correct whatever is causing the valve to bind, and/or replace air control diaphragm. Re-test.
3. Stop engine, reinstall filter element and air cleaner cover. Test is complete.

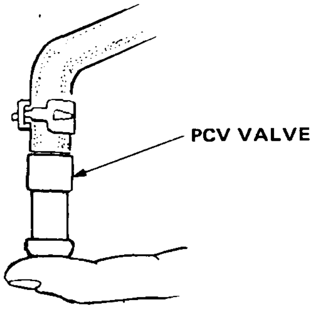
Crankcase Emission Control

Inspection

PCV Valve

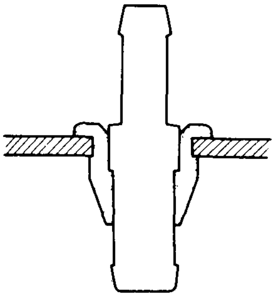
NOTE: Replace the PCV valve every 48,000 km (30,000 miles).

1. Check the crankcase ventilation hoses and connections for leaks and clogging.
2. Disconnect the PCV valve from the breather chamber.
3. Start the engine and allow it to idle.
4. Place your finger over the PCV valve and listen for a clicking noise from the PCV valve.



- If a clicking noise is heard, go on to step 5.
- If no noise is heard, replace the PCV valve and re-test.

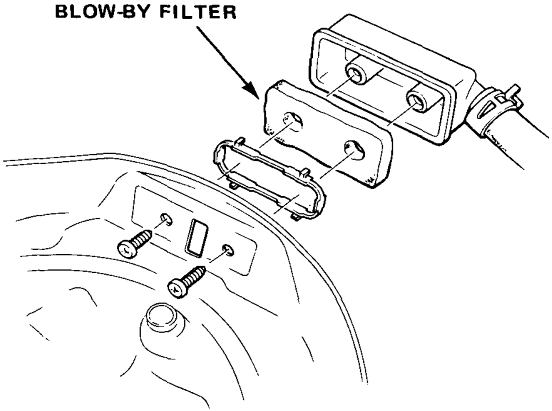
5. Install the PCV valve with the large end down.



Blow-by Filter

NOTE: Replace the Blow-by Filter every 48,000 km (30,000 miles).

1. Inspect the condition of the blow-by filter.
   - Replace the filter in the following instances:
   - When the filter is stuck fast and oil is dripping or seeping through.
   - When the filter is covered with dust and dirt so that clogging is evident.



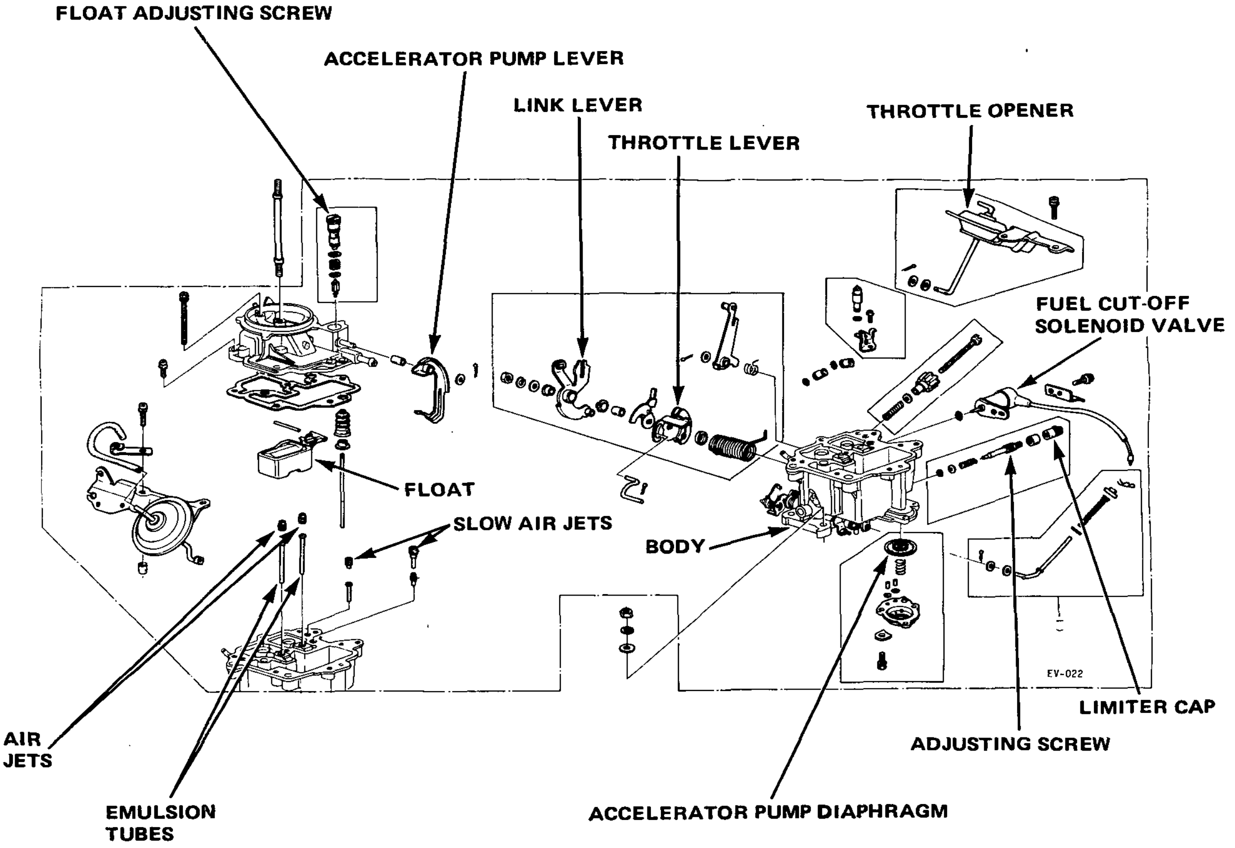
Carburetor

Replacement

CAUTION:

- As the carburetor parts are small always use hand tools that specifically correspond to the sizes of the fastners to be removed.
- The primary and secondary parts must be set aside separately in groups. Take care not to lose them.
- The carburetor must be disassembled in a clean area and washed in gasoline.
- Use compressed air to clean jet orifices and fuel passages. Do not use a wire.
- Do not disassemble the throttle and choke valves and their shafts.
- Replace with new parts as a set if so required in the parts list.

NOTE: After cleaning the carburetor, apply a coat of silicon oil.

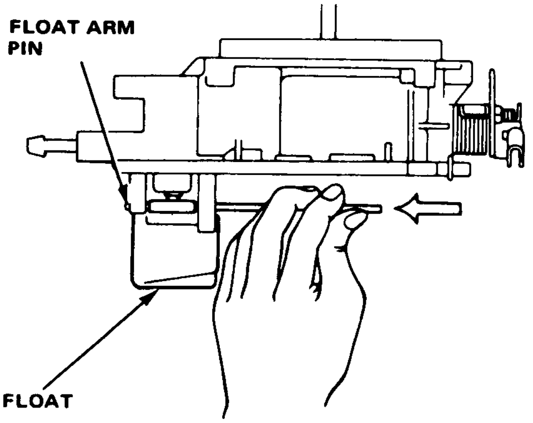

FLOAT ADJUSTING SCREW
ACCELERATOR PUMP LEVER
LINK LEVER
THROTTLE LEVER
THROTTLE OPENER
FUEL CUT-OFF SOLENOID VALVE
FLOAT
SLOW AIR JETS
BODY
EV-022
LIMITER CAP
ADJUSTING SCREW
AIR JETS
EMULSION TUBES
ACCELERATOR PUMP DIAPHRAGM

Float

Level Inspection/Adjustment

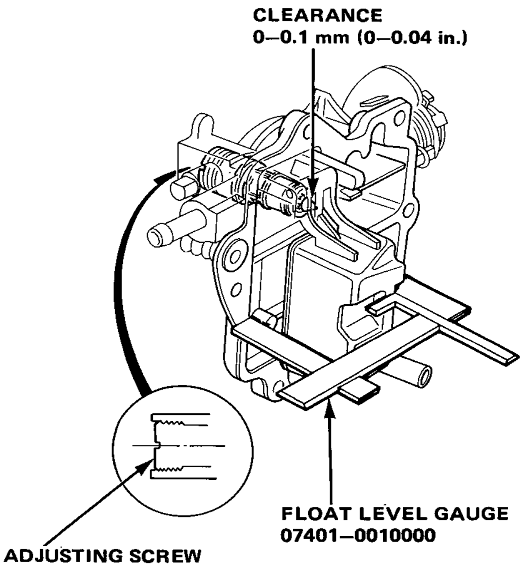
1. Remove float arm pin by lightly tapping it with a slender pin from long leg side as shown, then remove float.

   NOTE: Never tap the float leg.


FLOAT ARM PIN
FLOAT

2. Reassemble float in reverse order.
3. Measure float level by attaching a float level gauge to the center of float.

   Float Level (from Gasket):
   35.4–37.4 mm (1.39–1.47 in.)


CLEARANCE
0–0.1 mm (0–0.04 in.)
FLOAT LEVEL GAUGE
07401–0010000
ADJUSTING SCREW

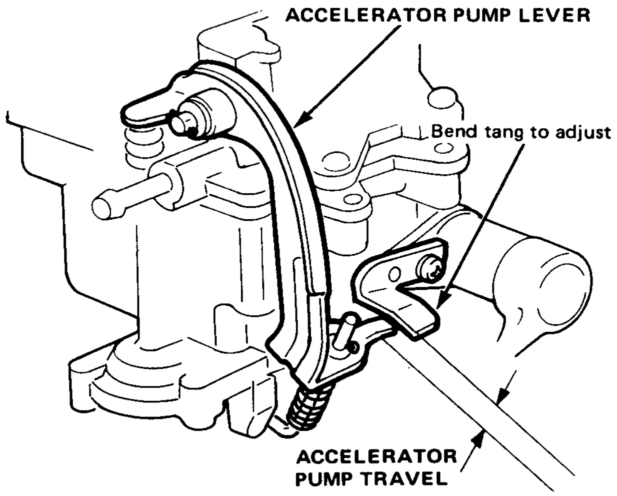
4. Adjust level by turning adjusting screw in or out if necessary.
5. Paint adjusting screw after adjustment.

Accelerator Pump Linkage/Choke Relief Valve

Travel Inspection/Adjustment

1. Measure accelerator pump lever travel between tang on accelerator lever and stop on carburetor body.

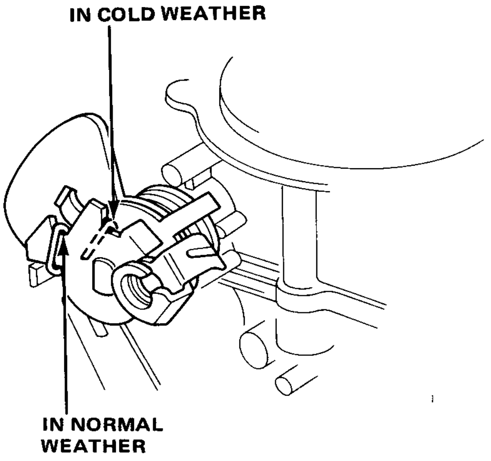
   Lever Travel: 18.5–19.5 mm (0.73–0.77 in.)


ACCELERATOR PUMP LEVER
Bend tang to adjust
ACCELERATOR PUMP TRAVEL

2. If out of specification, adjust travel by bending tang on lever.

Choke Relief Valve Adjustment

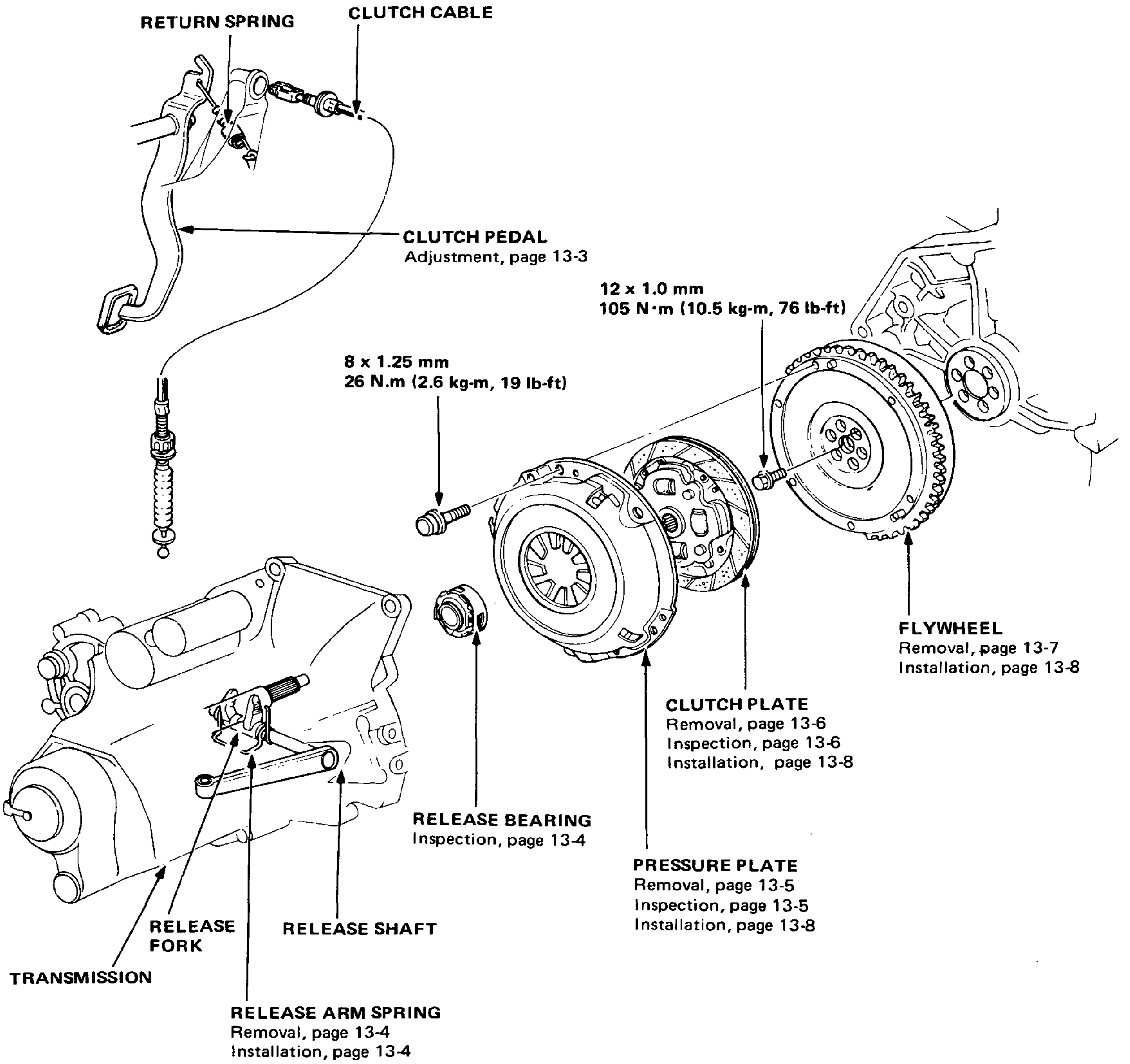
When engine is hard to start in cold weather, or when it is impossible to drive the car with choke operating, attach relief spring hook to the next strongest position.


IN COLD WEATHER
IN NORMAL WEATHER

Clutch

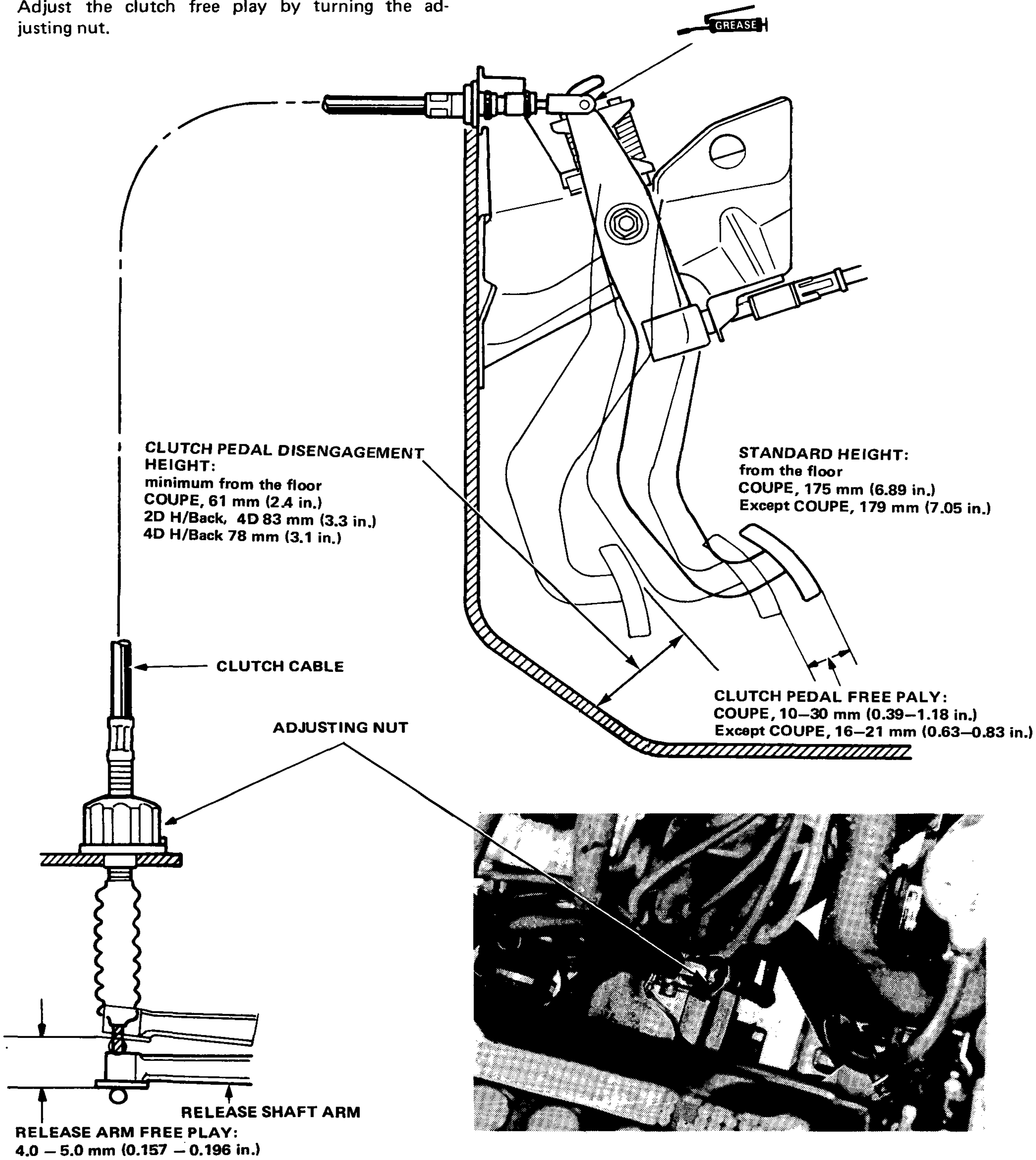
Index

NOTE: Whenever the transmission is removed the release bearing sliding surface should be cleaned and greased.


RETURN SPRING
CLUTCH CABLE
CLUTCH PEDAL
Adjustment, page 13-3
12 x 1.0 mm
105 N·m (10.5 kg-m, 76 lb-ft)
8 x 1.25 mm
26 N.m (2.6 kg-m, 19 lb-ft)
FLYWHEEL
Removal, page 13-7
Installation, page 13-8
CLUTCH PLATE
Removal, page 13-6
Inspection, page 13-6
Installation, page 13-8
RELEASE BEARING
Inspection, page 13-4
PRESSURE PLATE
Removal, page 13-5
Inspection, page 13-5
Installation, page 13-8
RELEASE FORK
RELEASE SHAFT
TRANSMISSION
RELEASE ARM SPRING
Removal, page 13-4
Installation, page 13-4

Clutch Adjustment

1. Measure the clutch pedal disengagement height.
2. Measure the clutch pedal free play.
3. Adjust the clutch free play by turning the adjusting nut.
4. Make sure that there is 4.0–5.0 mm (5/32–13/64 in) free play at the tip of release arm after the adjustment.



CLUTCH PEDAL DISENGAGEMENT HEIGHT:
minimum from the floor
COUPE, 61 mm (2.4 in.)
2D H/Back, 4D 83 mm (3.3 in.)
4D H/Back 78 mm (3.1 in.)

STANDARD HEIGHT:
from the floor
COUPE, 175 mm (6.89 in.)
Except COUPE, 179 mm (7.05 in.)

CLUTCH CABLE

CLUTCH PEDAL FREE PALY:
COUPE, 10–30 mm (0.39–1.18 in.)
Except COUPE, 16–21 mm (0.63–0.83 in.)

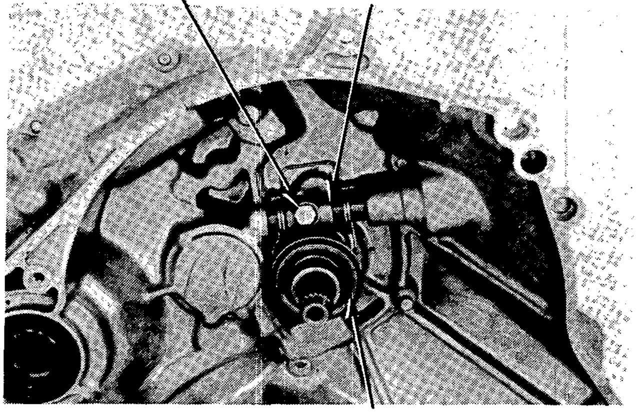
ADJUSTING NUT

RELEASE SHAFT ARM

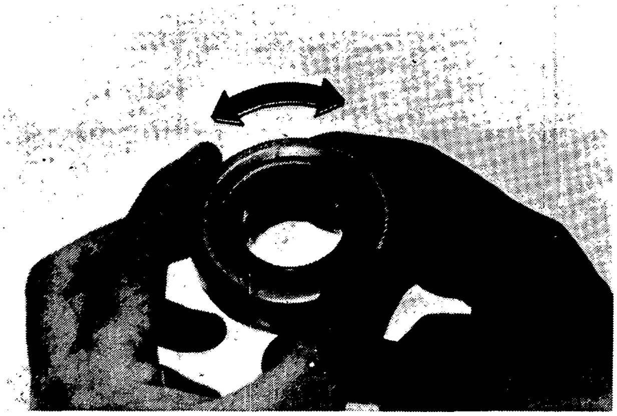
RELEASE ARM FREE PLAY:
4.0 – 5.0 mm (0.157 – 0.196 in.)

Release Bearing Removal / Inspection

1. Remove 8 mm special bolt.


8 mm SPECIAL BOLT
RELEASE FORK
RELEASE BEARING

2. Remove the clutch release shaft and then remove the release bearing and release fork.
3. Separate the release bearing from the release fork.
4. Check release bearing for excessive play by spinning it by hand.

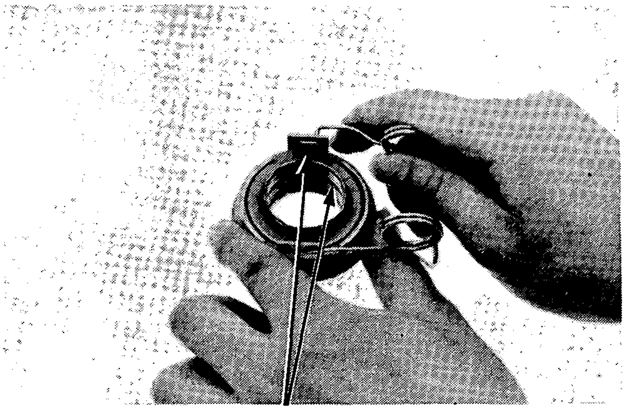


5. Replace bearing with new one if there is excessive play.

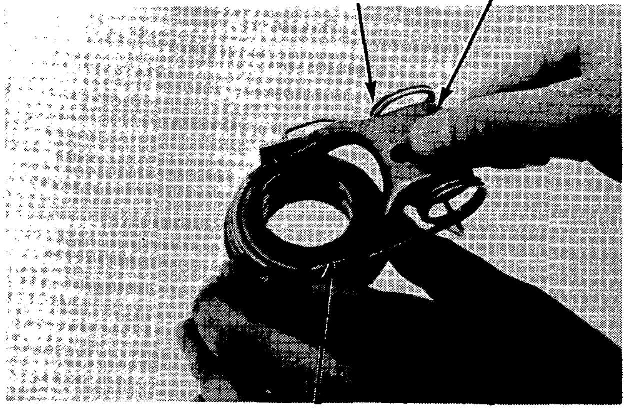
   CAUTION: Bearing is packed with grease. Do not wash in solvent.

Release Bearing Installation

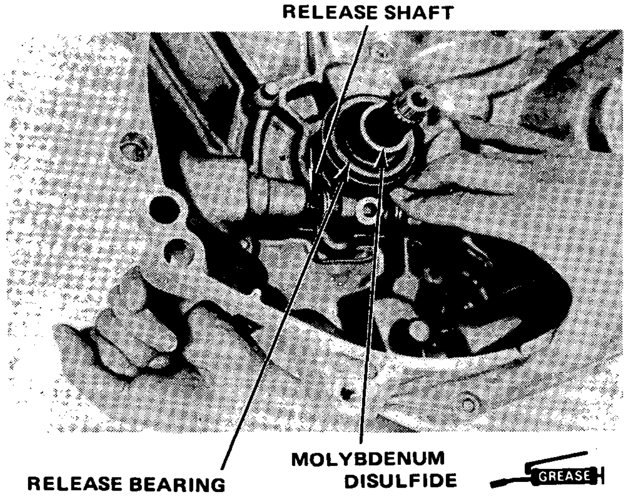
1. Apply grease to the grooves inside of the bearing and to the bearing contact surface with the release fork.


MOLYBDENUM DISULFIDE
GREASE

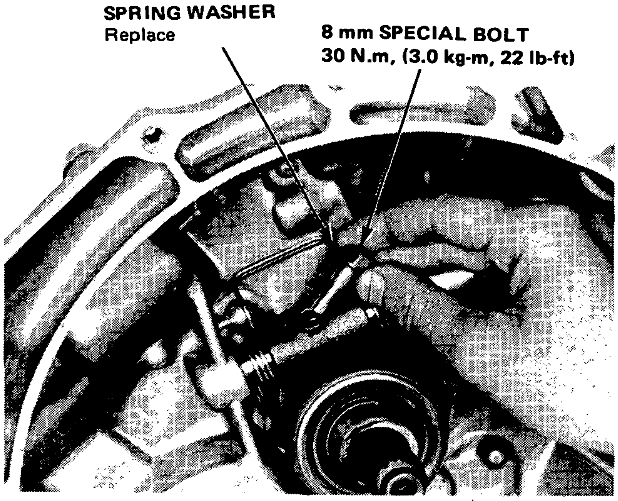
2. Install the release arm spring into the release fork tabs as shown.
3. Install the release fork onto the release bearing with its arms aligned with the tabs.


RELEASE FORK
RELEASE ARM SPRING
RELEASE BEARING

4. Slip the release bearing over the mainshaft, while holding the release arm spring as shown, then install the release shaft.


RELEASE SHAFT
RELEASE BEARING
MOLYBDENUM
DISULFIDE
GREASE

5. Align the hole on the release shaft with the one on the release fork then install the 8 mm special bolt and new spring washer.


SPRING WASHER
Replace
8 mm SPECIAL BOLT
30 N.m, (3.0 kg-m, 22 lb-ft)

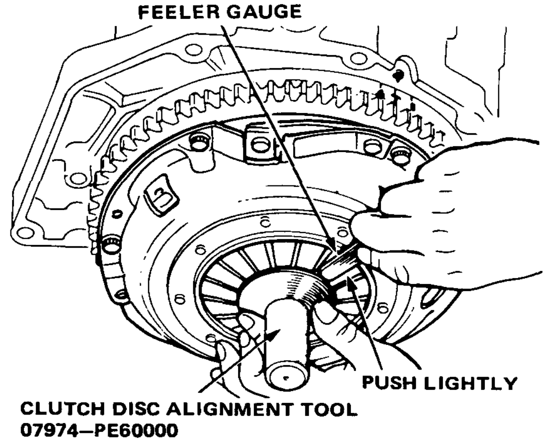
6. After installation, pull release arm up, then let it down, to be sure fork fits against bearing holder properly, and holder slides freely on sleeve.

Pressure Plate Removal/ Inspection

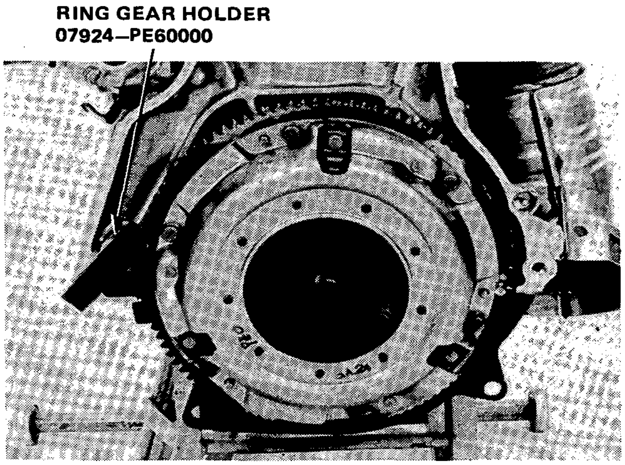
1. Inspect the fingers of diaphragm spring for wear at release bearing contact area.
2. Check diaphragm spring leaves for height using Clutch Disc Alignment Tool and feeler gauge.

to crankshaft

Diaphragn spring height:
Standard: **0.6 mm (0.024 in) Max.**
Service limit: **1.0 mm (0.039 in)**

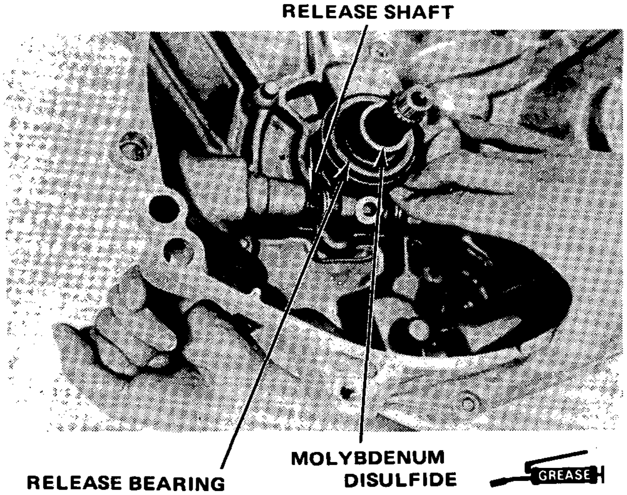

FEELER GAUGE
PUSH LIGHTLY
CLUTCH DISC ALIGNMENT TOOL
07974–PE60000

3. Install Ring Gear Holder.

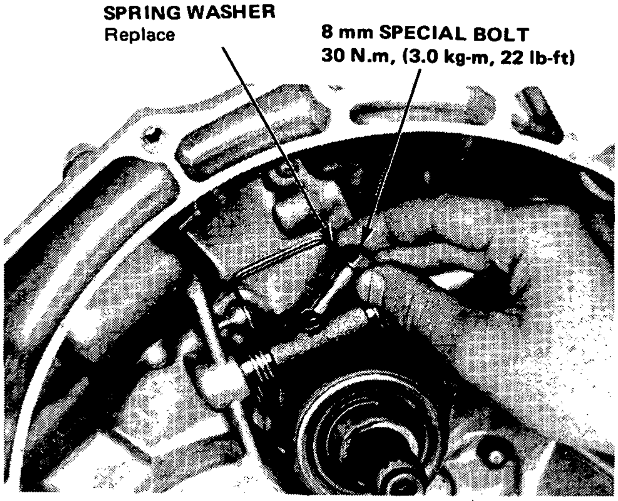

RING GEAR HOLDER
07924–PE60000

(cont'd)

4. Slip the release bearing over the mainshaft, while holding the release arm spring as shown, then install the release shaft.


RELEASE SHAFT
RELEASE BEARING
MOLYBDENUM DISULFIDE
GREASE

5. Align the hole on the release shaft with the one on the release fork then install the 8 mm special bolt and new spring washer.


SPRING WASHER
Replace
8 mm SPECIAL BOLT
30 N.m, (3.0 kg-m, 22 lb-ft)

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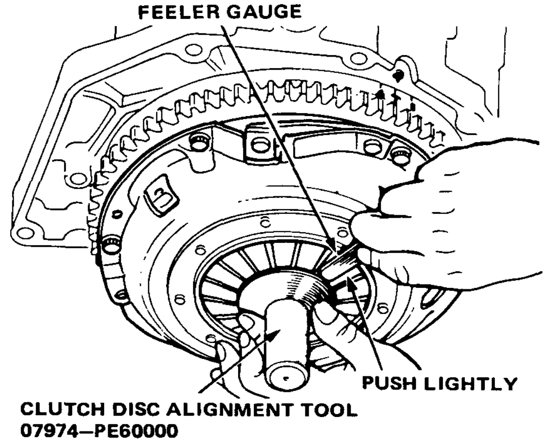
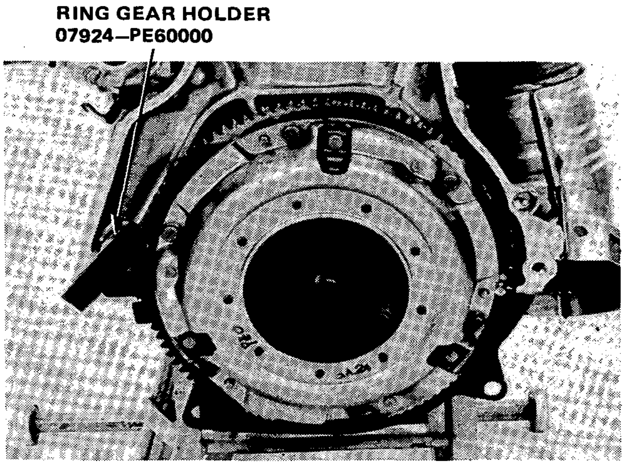

FEELER GAUGE
PUSH LIGHTLY
CLUTCH DISC ALIGNMENT TOOL
07974–PE60000

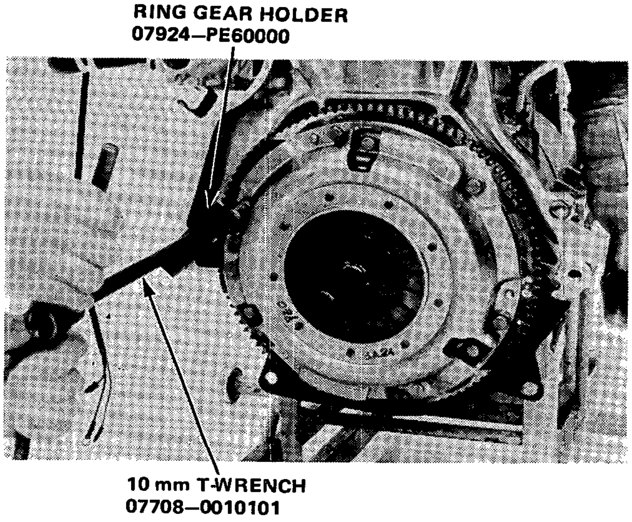
3. Install Ring Gear Holder.


RING GEAR HOLDER
07924–PE60000

(cont'd)

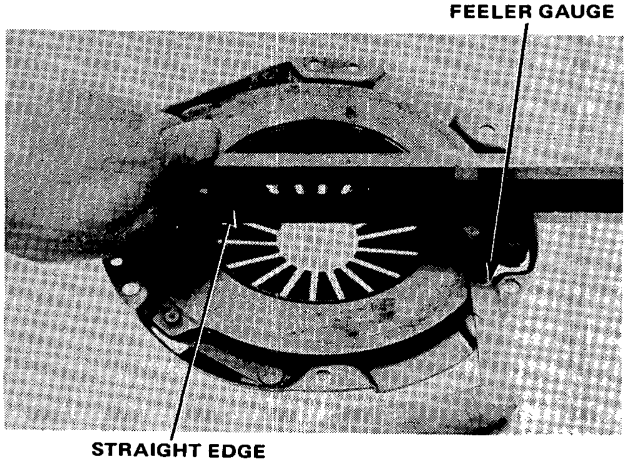
Pressure Plate Removal/Inspection (cont'd)

4. To prevent warping, unscrew pressure plate mounting bolts two turns at a time in a criss-cross pattern using a 10 mm T-wrench, then remove pressure plate and clutch plate.


RING GEAR HOLDER
07924–PE60000
10 mm T-WRENCH
07708–0010101

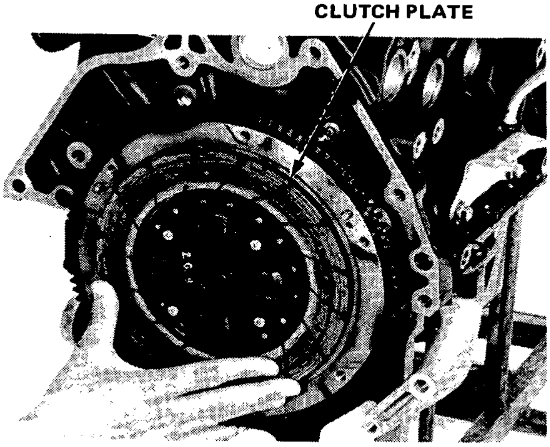
5. Inspect pressure plate surface for wear, cracks, or burning.
6. Inspect for warpage using a straight edge and feeler gauge.

Standard:	**0.03 mm (0.001 in.) max.**
Service Limit:	**0.15 mm (0.006 in.)**


FEELER GAUGE
STRAIGHT EDGE

Clutch Plate Removal/Inspection

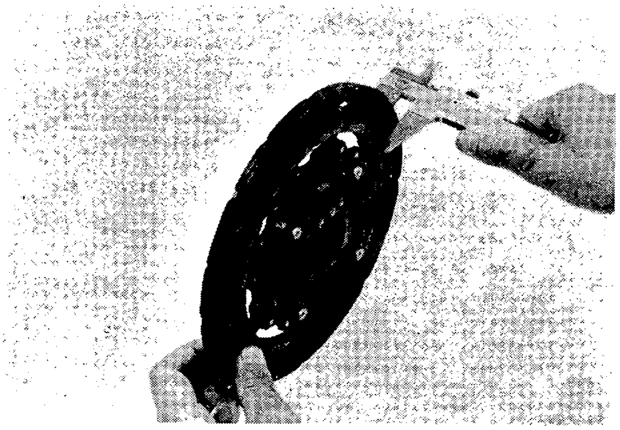
1. Remove clutch plate.


CLUTCH PLATE

2. Inspect lining for signs of slipping or oil. Replace if burned black or oil soaked.
3. Measure clutch plate thickness.

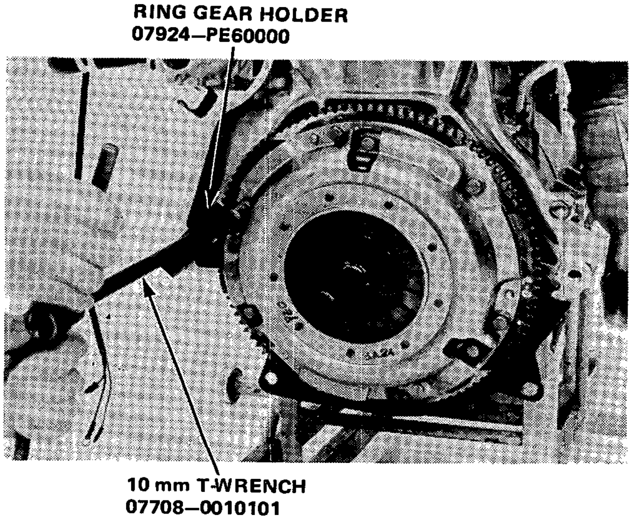
Clutch Plate Thickness:

Standard:	**8.1–8.8mm (0.32–0.35 in.)**
Service Limit:	**5.7 mm (0.22 in.)**



Pressure Plate Removal/Inspection (cont'd)

4. To prevent warping, unscrew pressure plate mounting bolts two turns at a time in a criss-cross pattern using a 10 mm T-wrench, then remove pressure plate and clutch plate.


RING GEAR HOLDER
07924–PE60000
10 mm T-WRENCH
07708–0010101

5. Inspect pressure plate surface for wear, cracks, or burning.
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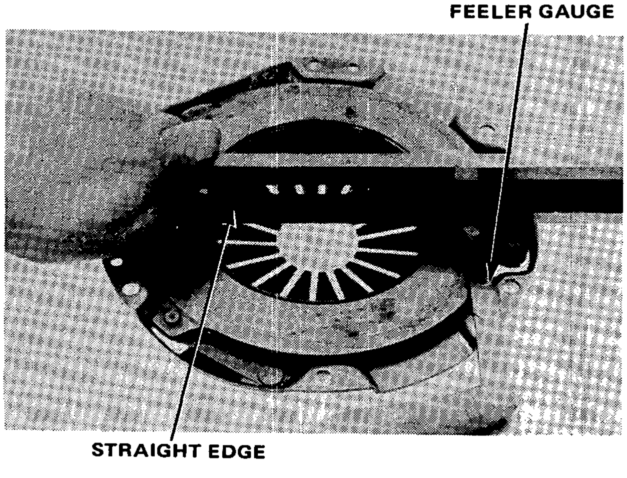
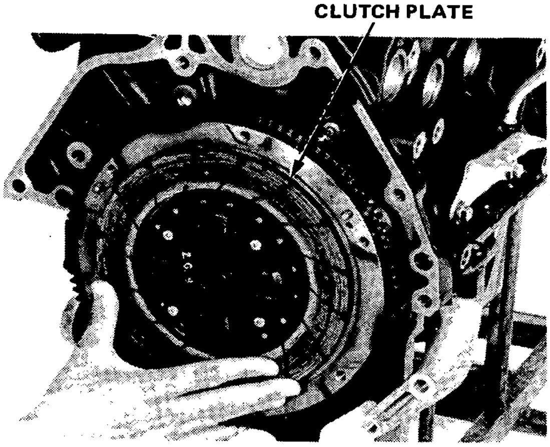

FEELER GAUGE
STRAIGHT EDGE

Clutch Plate Removal/Inspection

1. Remove clutch plate.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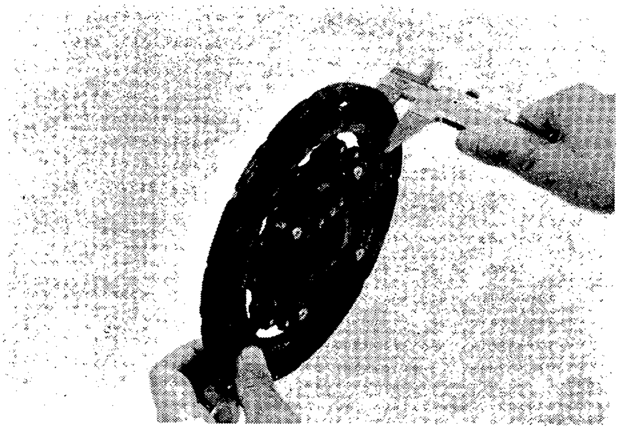
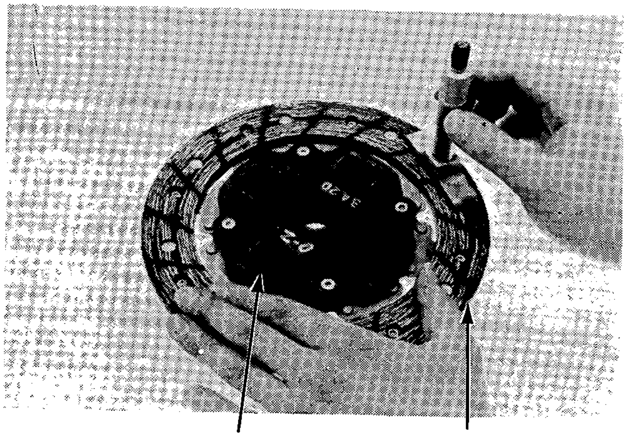


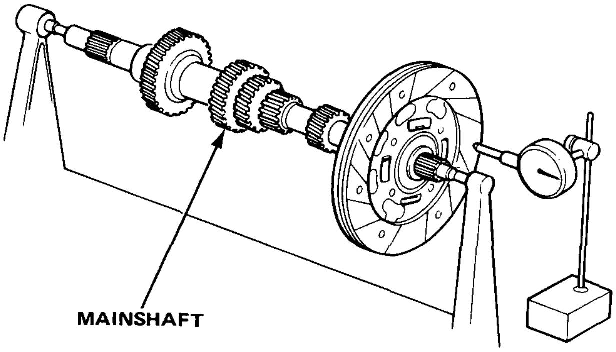
4. Check for loose rubber torsion dampers. Replace clutch plate if any are loose.
5. Measure depth from lining surface to rivets, on both sides.

Rivet Depth:
Standard (New): **1.3 mm (0.051 in.) min.**
Service Limit: **0.2 mm (0.008 in.)**



6. Measure the clutch plate runout with the mainshaft and a dial indicator.

Clutch plate runout:
Standard: **0.8 mm (0.031 in.) max.**
Service Limit: **1.0 mm (0.039 in.)**



Flywheel Inspection/Removal

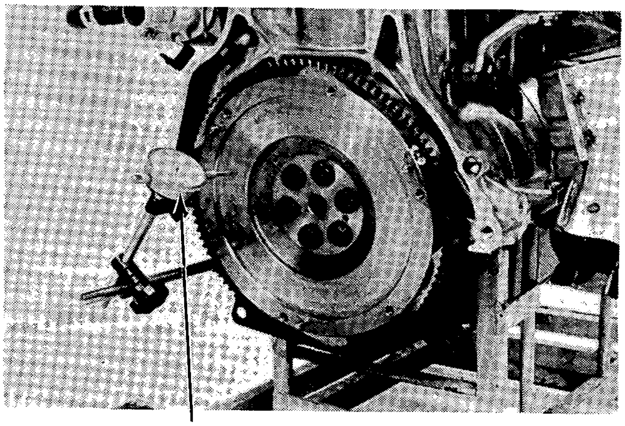
1. Inspect ring gear teeth for wear or damage.

2. Inspect clutch plate mating surface on flywheel for wear, cracks or burning.

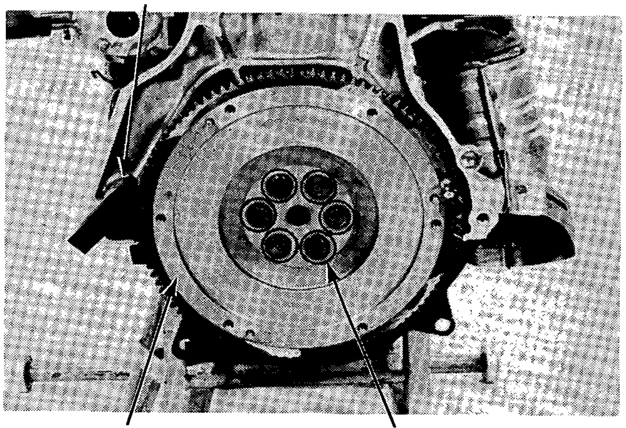
3. Measure flywheel runout using dial indicator through at least two full turns. Push against flywheel each time you turn it to take up crankshaft thrust washer clearance.

NOTE: Runout can be measured with engine installed.

Flywheel Runout:
Standard (New): **0.05 mm (0.002 in.) max.**
Service Limit: **0.15 mm (0.006 in.)**



4. Remove six flywheel mounting bolts and flywheel.



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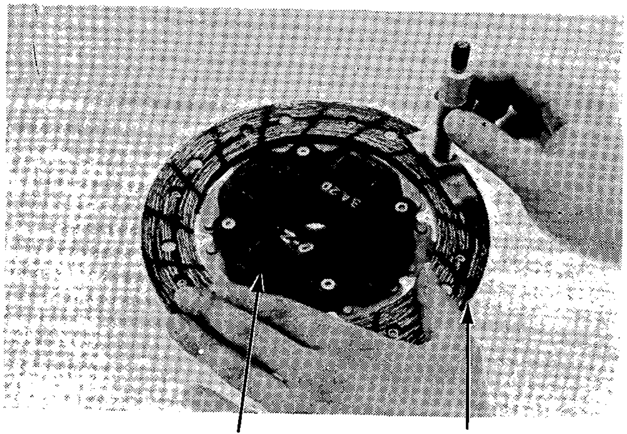

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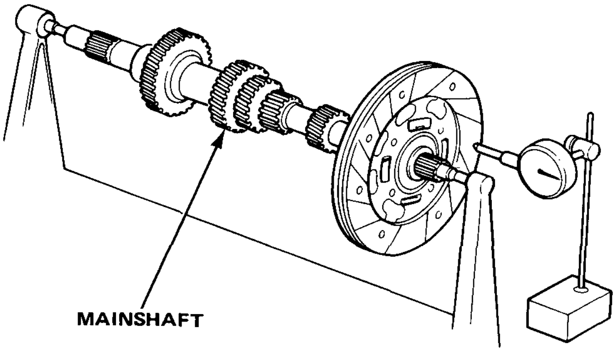

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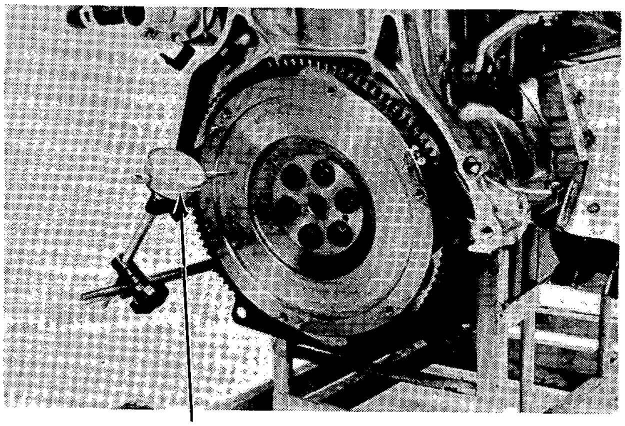

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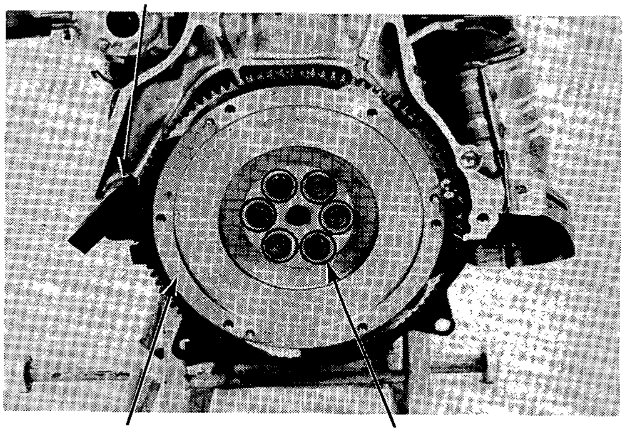
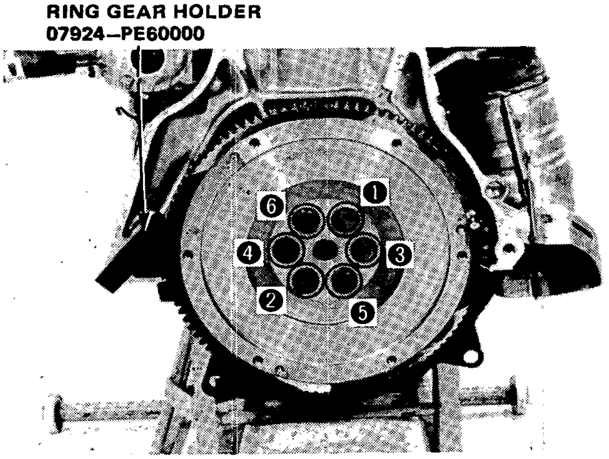


Clutch

Pressure Plate/Clutch Installation

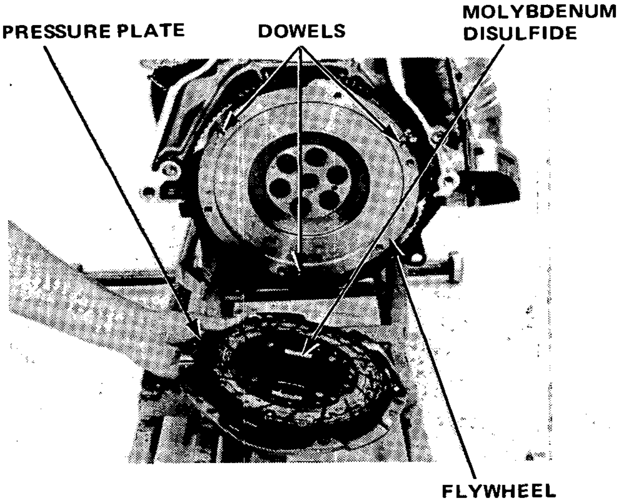
1. Align hole in flywheel with crankshaft dowel pin and assemble. Install bolts only finger right.

2. Install Ring Gear Holder, then torque flywheel bolts in a criss-cross pattern.


RING GEAR HOLDER
07924–PE60000
❶
❻
❹
❸
❷
❺

105 N.m (10.5 kg-m, 76 lb-ft)

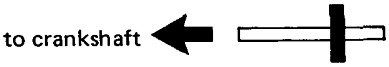
3. Install friction disc and pressure plate by aligning flywheel dowels with dowel holes in clutch cover.

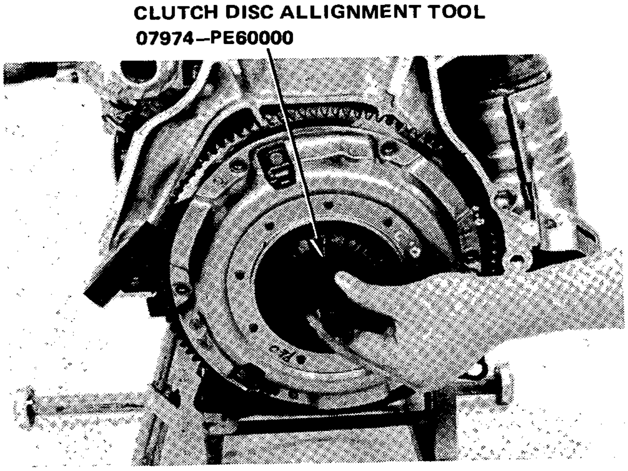

PRESSURE PLATE
DOWELS
MOLYBDENUM
DISULFIDE
FLYWHEEL

4. Install attaching bolts but do not tighten the bolts at this time.

5. Insert Clutch Alignment Tool in spline hole in friction disc.

NOTE: Place the special tool as shown.

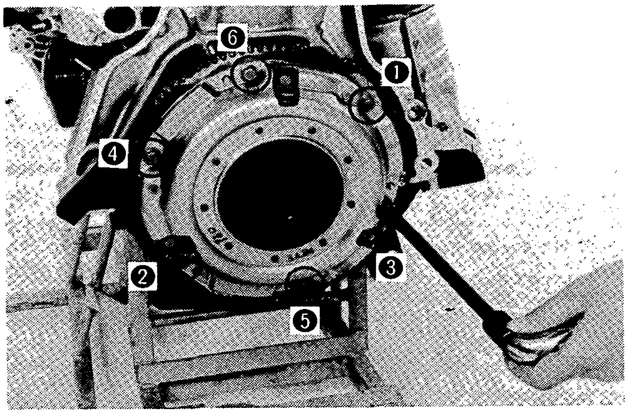

to crankshaft


CLUTCH DISC ALLIGNMENT TOOL
07974–PE60000

6. Torque the bolts in a criss-cross pattern. Tighten them two turns at a time to prevent warping the diaphragm spring.

26 N·m (2.6 kg-m, 19 lb-ft)

TIGHTENING SEQUENCE:



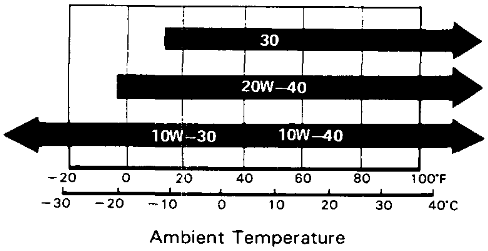
7. Remove Alignment Tool and Ring Gear Holder.

5-Speed Transmission

Maintenance

Oil Change

Change oil every 48,000 km (30,000 miles).
Use only SE or SF grade oil.
Use the proper viscosity oil for the climate.

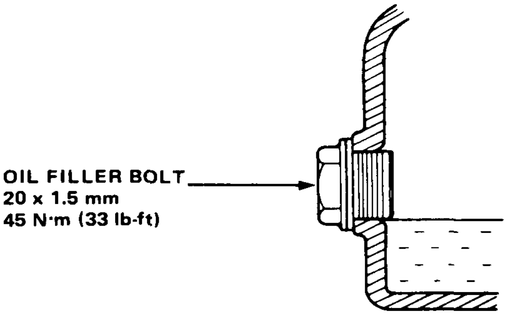


Capacity:

2.3 ℓ (2.4 US qt) after draining
2.5 ℓ (2.6 US qt) after overhaul

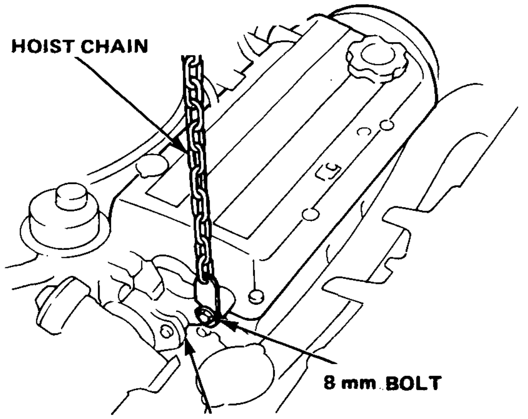
Oil Level Check

1. Check with oil at operating temperature, engine OFF, and car on level ground.
2. Remove oil filler bolt and check level with finger.
3. Oil level must be to fill hole. If it is below hole, add oil until it runs out, then reinstall bolt.



Removal

1. Disconnect the ground cable at battery and at transmission.
2. Release the steering lock and put gear shift lever in neutral.
3. Disconnect the engine compartment wiring:
   - Battery positive cable from starter.
   - Black/white wire from starter solenoid.
   - Green/black and yellow wires from back-up light switch.
   - Transmission ground cable.
4. Remove the speedometer cable by removing clip. Do not disassemble speedometer gear holder.
5. Disconnect the clutch cable at release arm.
6. Remove the transmission side starter mounting bolts and top transmission bolts.
7. Loosen the front wheel lug nuts.
8. Apply the parking brake, block the rear wheels, then raise the front end on jack stands and remove the front wheels.
9. Attach a chain hoist to the bolt shown, then raise the engine a sight amount to unload the mounts.



10. Drain the transmission oil. Reinstall the drain plug and washer.
11. Disconnect the right and left lower arm ball joints and tie-rod end ball joints using Ball Joint Remover Tool.

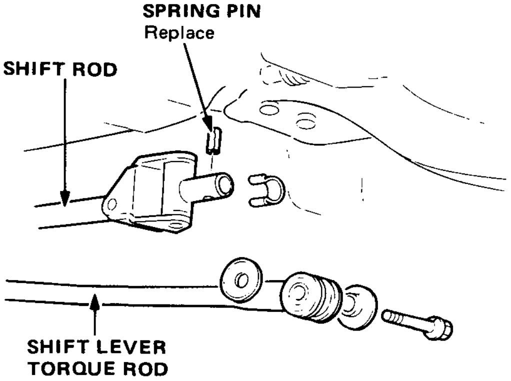
    CAUTION: Make sure the floor jack is positioned securely under the lower control arm, at the ball joint. Otherwise, torsion bar tension on the lower control arm may cause the arm to "jump" suddenly away from the steering knuckle as the ball joint is being removed.

12. Remove the engine splash shield and the right side wheel well splash shield. (page 5-2).

13. Disconnect the header pipe at the exhaust manifold. (page 5-11).

14. Turn the right steering knuckle outward as far as it will go. With screwdriver against inboard CV joint,pry right axle out of transmission housing approximately 1/2 inch (to force its spring clip out of groove inside differential gear splines), then pull it out the rest of the way. Repeat on opposite side, or, with driver's side connected, pry left axle out of transmission during Step. 20.

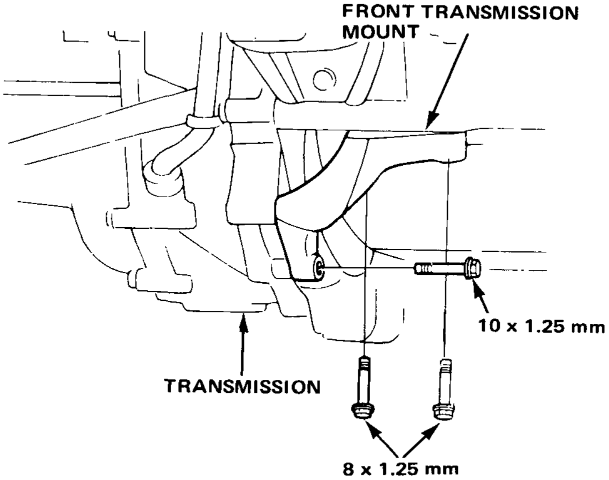
15. Disconnect the shift lever torque rod from clutch housing.


SPRING PIN
Replace
SHIFT ROD
SHIFT LEVER
TORQUE ROD

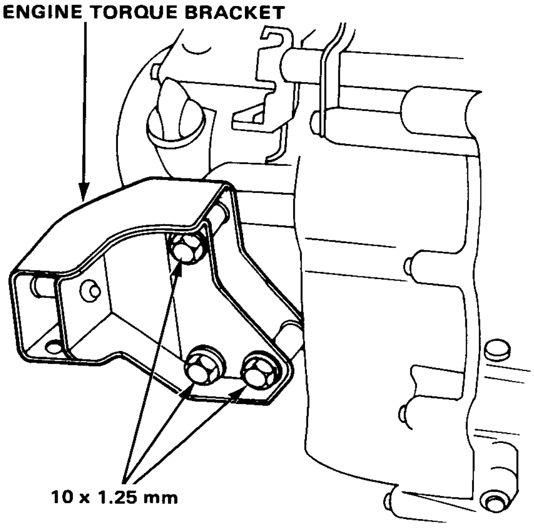
16. Slide pin retainer back, drive out spring pin using a pin punch, then disconnect shift rod.

17. Place a jack under the transmission and raise transmission just enough to take weight off mounts.

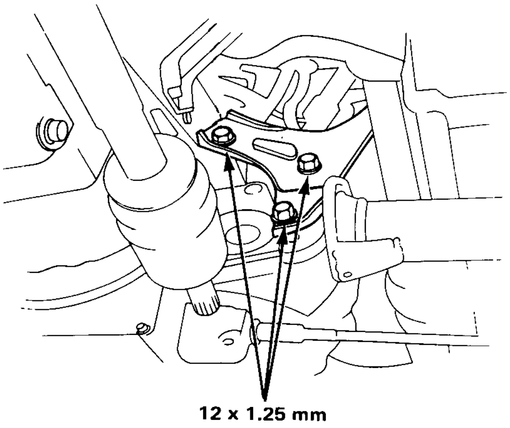
18. Remove the bolts from the front transmission mount.


FRONT TRANSMISSION
MOUNT
10 x 1.25 mm
TRANSMISSION
8 x 1.25 mm

19. Remove the transmission housing bolts from the engine torque bracket.


ENGINE TORQUE BRACKET
10 x 1.25 mm

20. Remove the clutch housing bolts from the rear transmission mount.



21. Remove the two transmission bolts.

22. Pull the transmission away from engine until mainshaft clears clutch pressure plate, then lower on transmission jack.

5-Speed Transmission

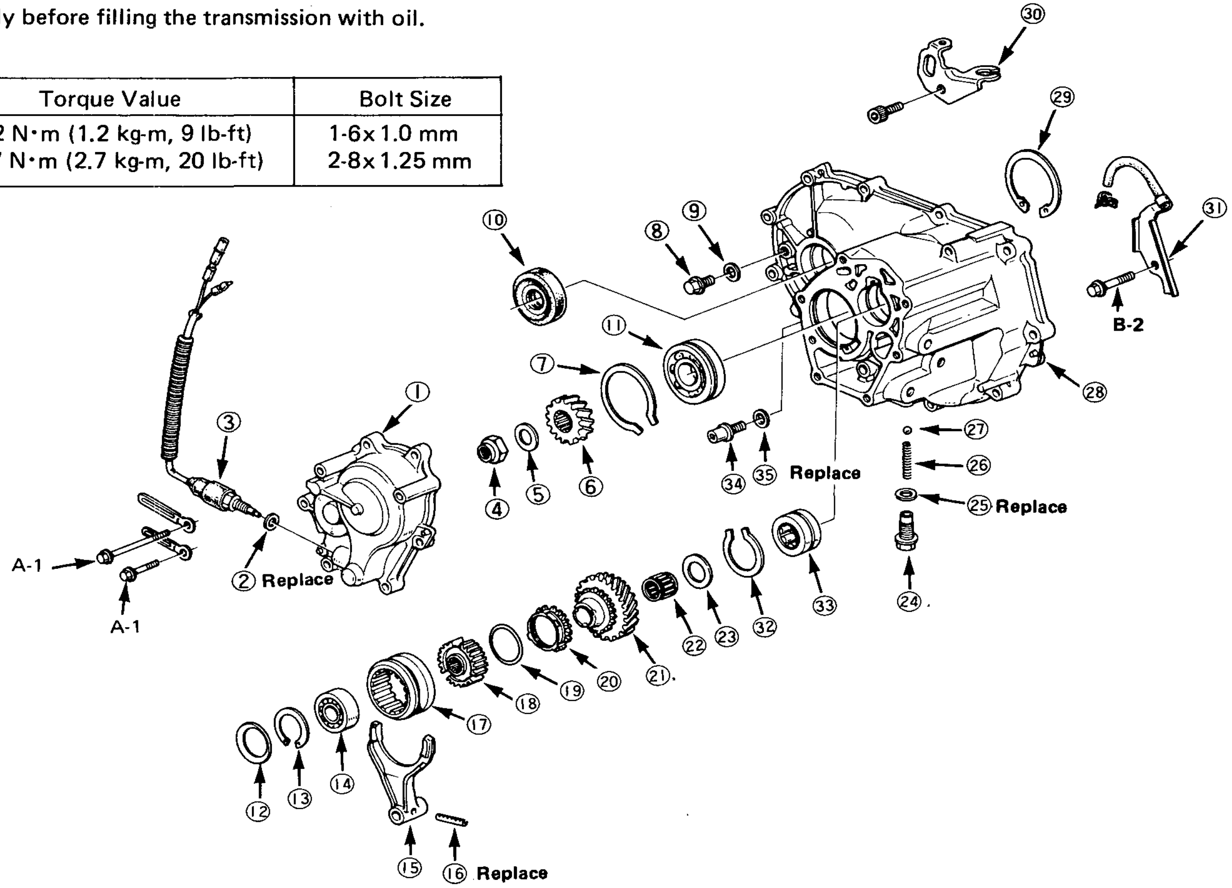
Index

Clean all parts thoroughly in solvent and dry with compressed air.

Lubricate all parts with oil before reassembly.

NOTE: This transmission uses no gaskets between the major housings; use Honda P/N 08740-99986 sealant. Assemble the housings within 20 minutes after applying the sealant and allow it to cure at least 30 minutes after assembly before filling the transmission with oil.

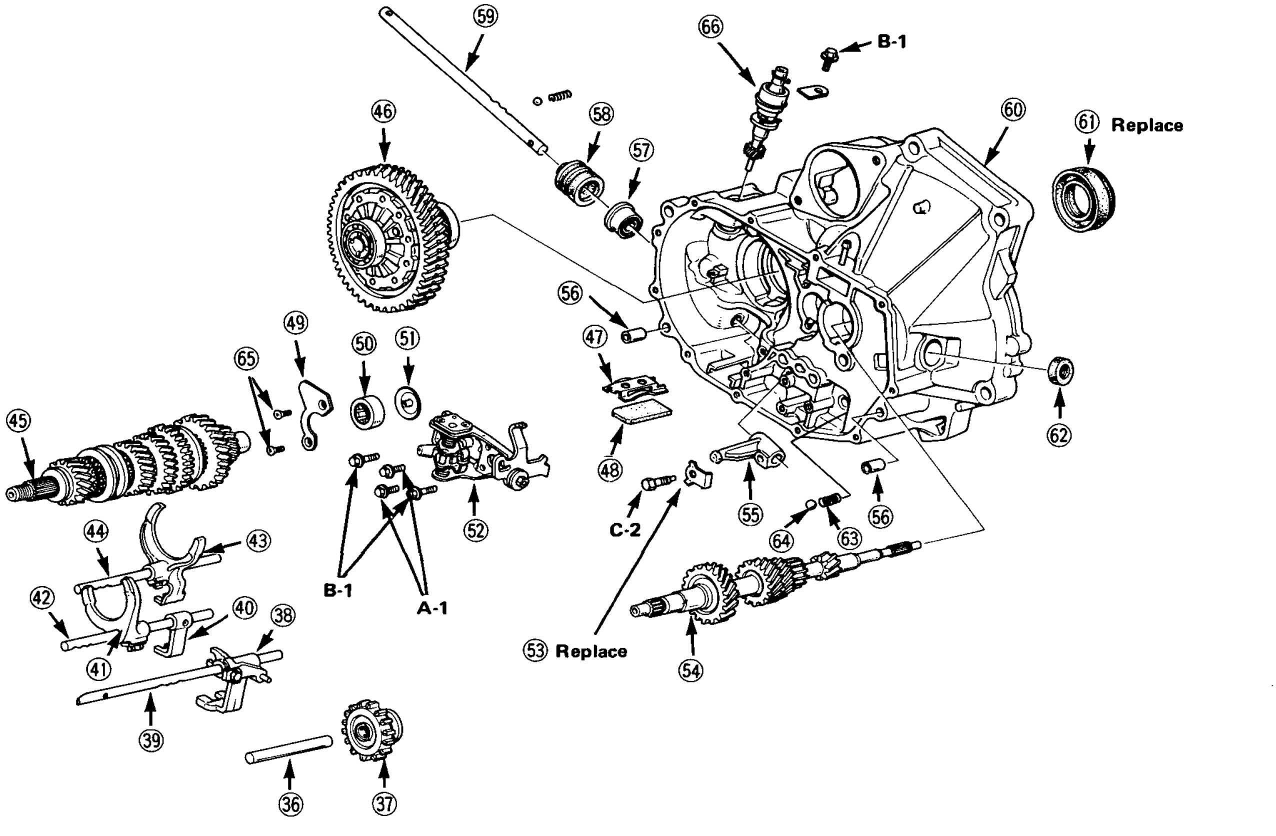
Torque Value	Bolt Size
A-12 N•m (1.2 kg-m, 9 lb-ft)	1-6x1.0 mm
B-27 N•m (2.7 kg-m, 20 lb-ft)	2-8x1.25 mm



① **5th GEAR HOUSING**
Removal, page **14-7**
② **14 mm WASHER**
③ **BACK-UP LIGHT SWITCH**
Inspection, page **14-38**
25 N•m (2.5 kg-m, 18 lb-ft)
④ **COUNTERSHAFT LOCKNUT**
110 N•m (11.0 kg-m, 80 lb-ft)
⑤ **SPRING WASHER**
⑥ **COUNTERSHAFT 5th GEAR**
⑦ **65 mm SNAP RING**
⑧ **OIL FILLER BOLT**
45 N•m (4.5 kg-m, 33 lb-ft)
⑨ **SEALING WASHER**
⑩ **SEAL**
Removal, page **14-19**
Installation, page **14-35**
⑪ **COUNTERSHAFT BALL BEARING**
⑫ **52 mm SPRING WASHER**
⑬ **SNAP RING**
Removal, page **14-7**
Installation, page **14-7**
⑭ **MAINSHAFT BALL BEARING**
⑮ **5th GEAR SHIFT FORK**
⑯ **SPRING PIN**
Disassembly, page **14-6**
Assembly, page **14-34**
⑰ **5th GEAR SYNCHRO SLEEVE**
⑱ **5th GEAR SYNCHRO HUB**
⑲ **SYNCHRO SPRING**
⑳ **5th GEAR SYNCHRO RING**
㉑ **5th GEAR**
㉒ **NEEDLE BEARING**
㉓ **THRUST WASHER**
㉔ **DETENT BALL RETAINER SCREW**
22 N•m (2.2 kg-m, 16 lb-ft)
㉕ **SEALING WASHER**
㉖ **DETENT SPRING**
㉗ **DETENT BALL**
㉘ **TRANSMISSION HOUSING**
㉙ **72 mm SNAP RING**
㉚ **CLUTCH CABLE BRACKET**
㉛ **BREATHER TUBE ASSEMBLY**
㉜ **45 mm SNAP RING**
㉝ **NEEDLE BEARING**
㉞ **OIL DRAIN PLUG**
40 N•m (4.0 kg-m, 29 lb-ft)
㉟ **SEALING WASHER**

NOTE: Always clean the magnet ㊽ whenever the transmission housing is disassembled.

Torque Value	Bolt Size
A-12 N·m (1.2 kg-m, 9 lb-ft)	1-6x1.0 mm
B-14 N·m (1.4 kg-m, 10 lb-ft)	2-8x1.25 mm
C-24 N·m (2.4 kg-m, 17 lb-ft)	



㊱ **REVERSE IDLER GEAR SHAFT**
㊲ **REVERSE IDLER GEAR**
Removal, page 14-10
Installation, page 14-31
㊳ **REVERSE SHIFT GUIDE**
㊴ **REVERSE SHIFT SHAFT**
㊵ **3rd GEAR SHAFT GUIDE**
㊶ **3rd GEAR SHIFT FORK**
㊷ **3rd GEAR FORK SHAFT**
㊸ **1st GEAR SHIFT FORK**
㊹ **1st GEAR FORK SHAFT**
㊺ **COUNTERSHAFT ASSEMBLY**
Disassembly, page 14-11
Measurement, page 14-21
Inspection, page 14-15
㊻ **DIFFERENTIAL**
Removal, page 14-19
Dis/assembly, Section 17
㊼ **HOLD-DOWN PLATE**

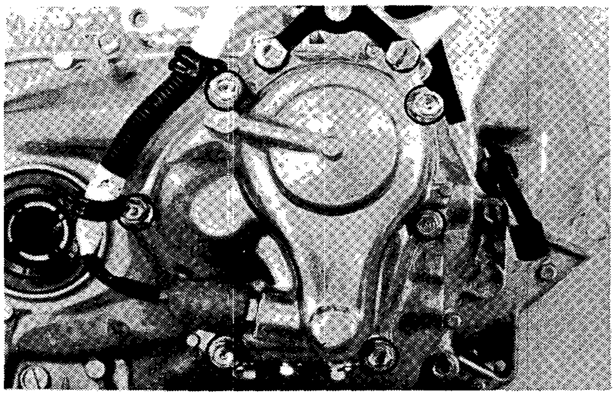
㊽ **MAGNET**
㊾ **BEARING RETAINER PLATE**
㊿ **NEEDLE BEARING**
(51) **OIL BARRIER PLATE**
(52) **SHIFT ARM HOLDER**
Removal, page 14-11
Disassembly, page 14-26
Assembly, page 14-26
(53) **LOCK PLATE**
(54) **MAINSHAFT**
Removal, page 14-11
Measurement, page 14-18
Inspection, page 14-12
(55) **GEAR SHIFT ARM**
(56) **DOWEL PIN**
(57) **SEAL**
(58) **BOOT**
(59) **GEAR SHIFT ROD**
(60) **CLUTCH HOUSING**

(61) **SEAL**
(62) **DUST SEAL**
(63) **DETENT SPRING**
(64) **DETENT BALL**
(65) **DETENT FLAT SCREW**
(66) **SPEEDOMETER DRIVEN GEAR**

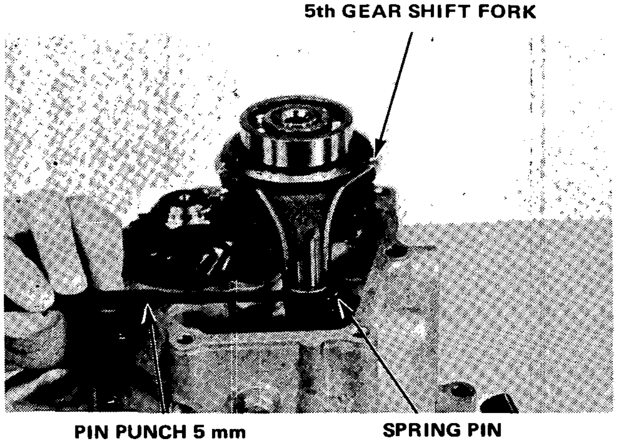
5-Speed Transmission

5th Gear Housing Snap Ring Inspection

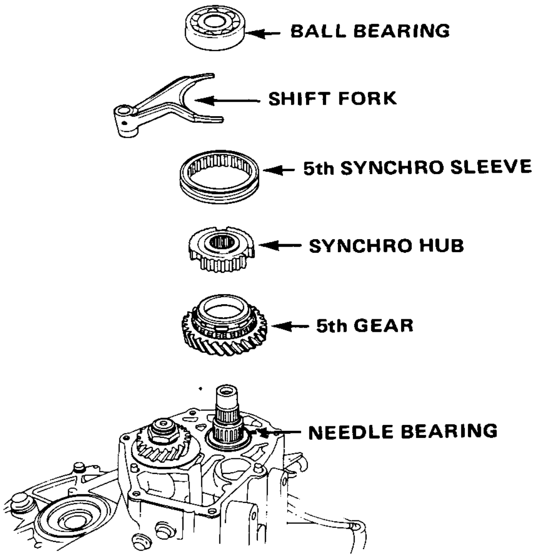
1. Remove the six 5th gear housing mounting bolts.



2. Remove the spring pin from the 5th gear shift fork.

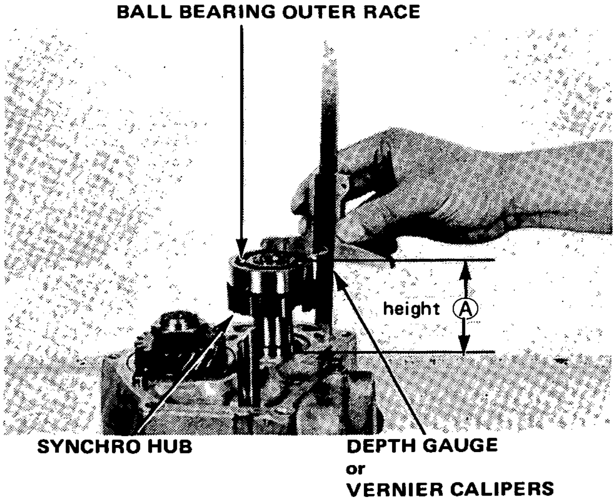

5th GEAR SHIFT FORK
PIN PUNCH 5 mm
SPRING PIN

3. Remove the outside parts from the mainshaft.

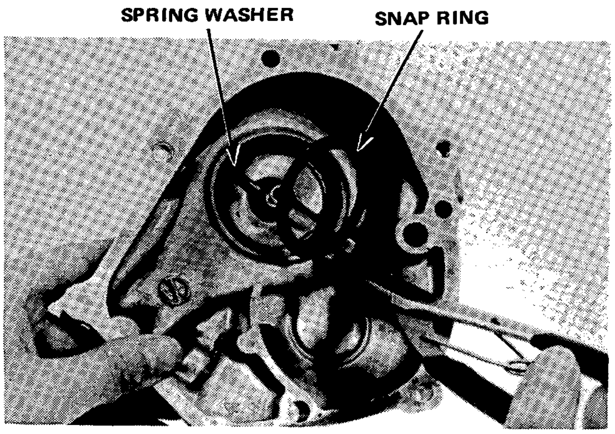

BALL BEARING
SHIFT FORK
5th SYNCHRO SLEEVE
SYNCHRO HUB
5th GEAR
NEEDLE BEARING

4. Reinstall the synchro hub and the ball bearing onto the mainshaft.

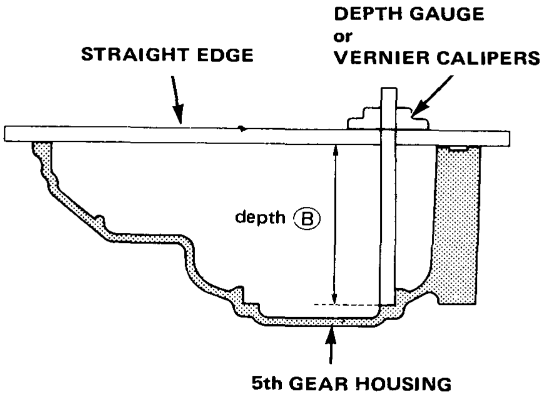
5. Clean all sealant residue from the transmission housing, then measure from the top of the ball bearing's outer race to the mounting flange for the 5th gear housing. Measure at two points and average the reading.


BALL BEARING OUTER RACE
height Ⓐ
SYNCHRO HUB
DEPTH GAUGE
or
VERNIER CALIPERS

6. Remove the 52 mm spring washer and the snap ring from the 5th gear housing.



7. Place a straight edge on the 5th gear housing and measure the depth of the snap ring thrust shim installation hole. Measure at two points and average the readings. Subtract the thickness of the straight edge from the reading.



8. *Select the correct thickness snap ring as follows:*
   (a) Subtract the bearing height (step 5) from the 5th gear housing depth (step 7).
   (b) Subtract the spring washer free height (0.85 mm /0.033 in) from the dimension determined in step 8a.

EXAMPLE:

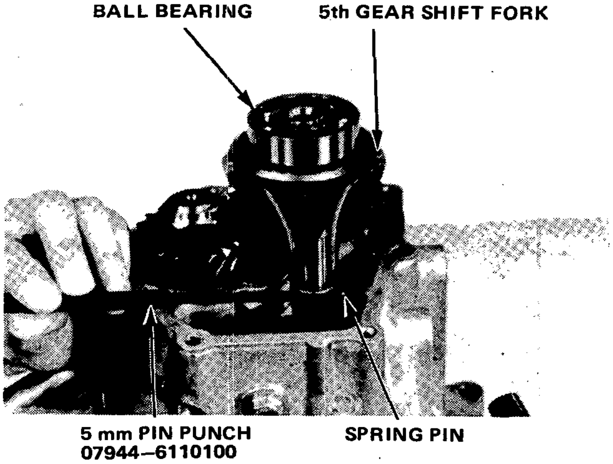
Housing depth:	58.05 mm (2.285 in)
Bearing height:	-56.05 mm (2.207 in)
	2.00 mm (0.078 in)
Spring washer height:	-0.85 mm (0.033 in)
Correct snap ring thickness	1.15 mm (0.045 in)

Parts Number	Thickness
23931-PE6-000	0.5 mm (0.020 in)
23932-PE6-000	1.1 mm (0.043 in)
23933-PE6-000	1.15 mm (0.045 in)
23934-PE6-000	1.20 mm (0.047 in)
23935-PE6-000	1.25 mm (0.049 in)
23936-PE6-000	1.30 mm (0.051 in)
23937-PE6-000	1.35 mm (0.053 in)
23938-PE6-000	1.40 mm (0.055 in)
23939-PE6-000	1.45 mm (0.057 in)
23940-PE6-000	1.50 mm (0.059 in)
23941-PE6-000	1.55 mm (0.061 in)

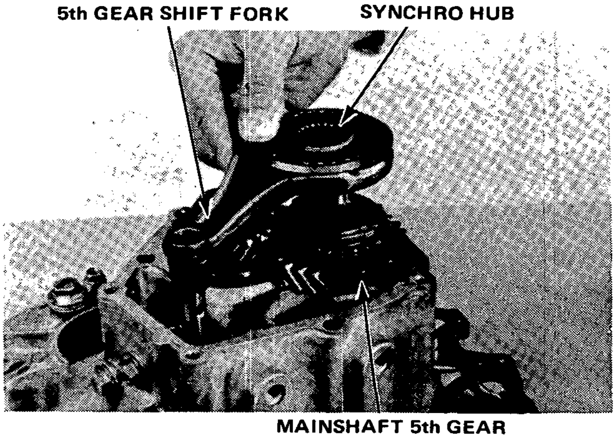
5-Speed Transmission

Housing Disassembly

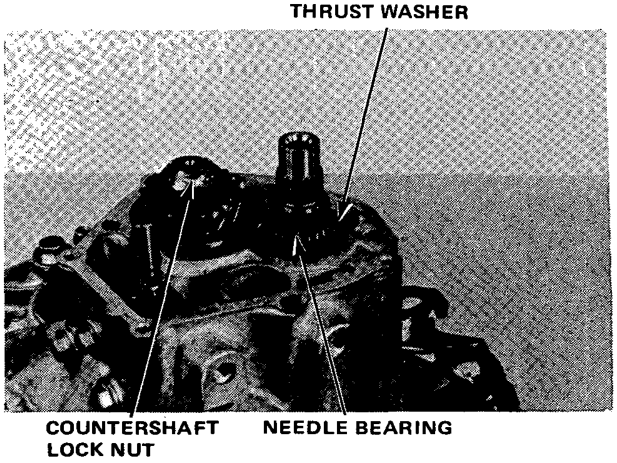
1. Drive out the spring pin securing the fifth gear shift fork to the shaft.
2. Remove the ball bearing.


BALL BEARING
5th GEAR SHIFT FORK
5 mm PIN PUNCH
07944–6110100
SPRING PIN

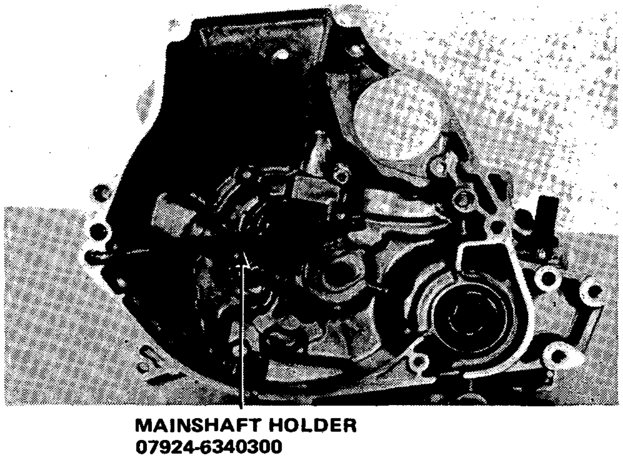
3. Remove the shift fork and synchro hub as a unit. Then remove the synchro ring and spring and the mainshaft 5th gear.


5th GEAR SHIFT FORK
SYNCHRO HUB
MAINSHAFT 5th GEAR

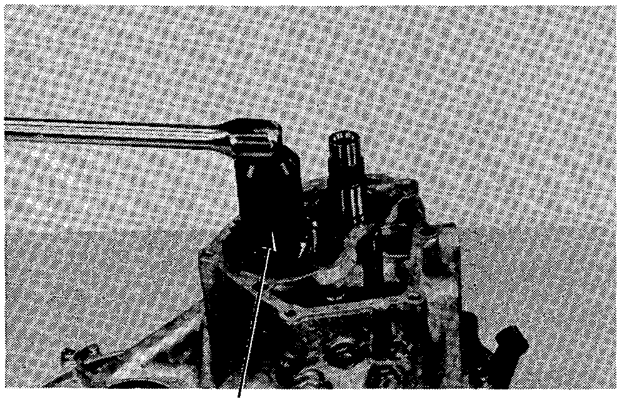
4. Remove the needle bearing and the thrust washer.


THRUST WASHER
COUNTERSHAFT LOCK NUT
NEEDLE BEARING

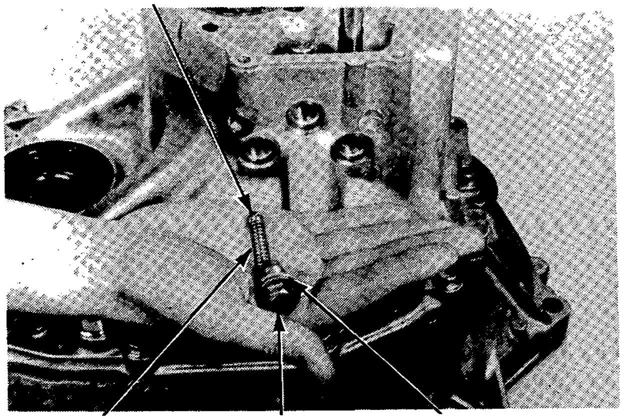
5. Raise tab on mainshaft lock nut using a hammer and prick punch.
6. Install the mainshaft holder.


MAINSHAFT HOLDER
07924-6340300

7. Remove the lock nut using a 22 mm socket wrench.

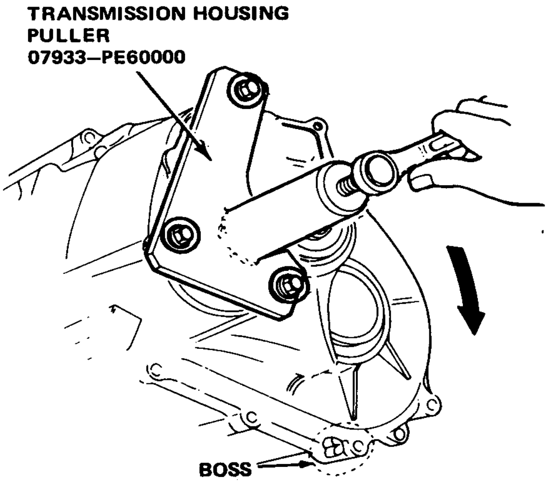

22 mm SOCKET WRENCH

8. Remove the detent ball retaining bolts, springs and balls.


DETENT BALL
SPRING
RETAINING BOLT
WASHER

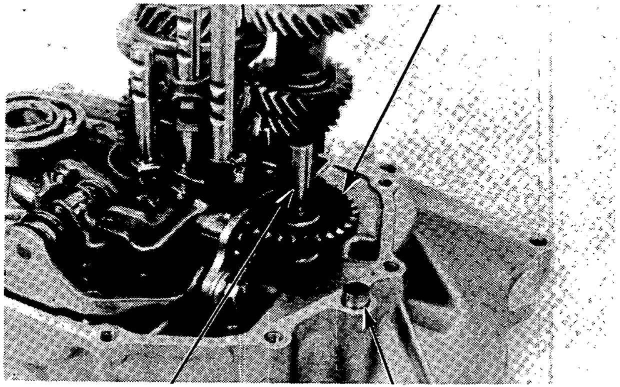
9. Remove the 11 bolts from housing.

10. Loosen transmission housing from liquit sealant by tapping on bosses with a soft hammer.
Remove the transmission housing by using puller.

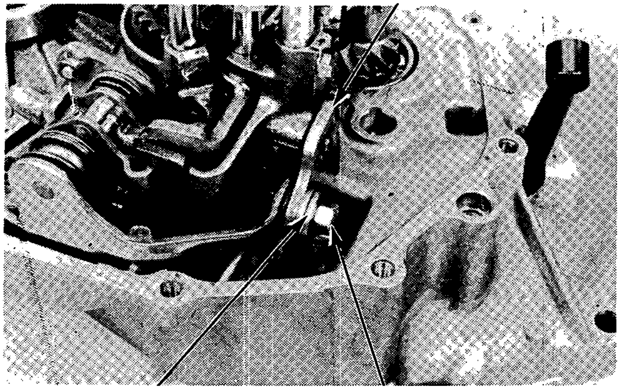

TRANSMISSION HOUSING PULLER 07933–PE60000
BOSS

Shaft Removal

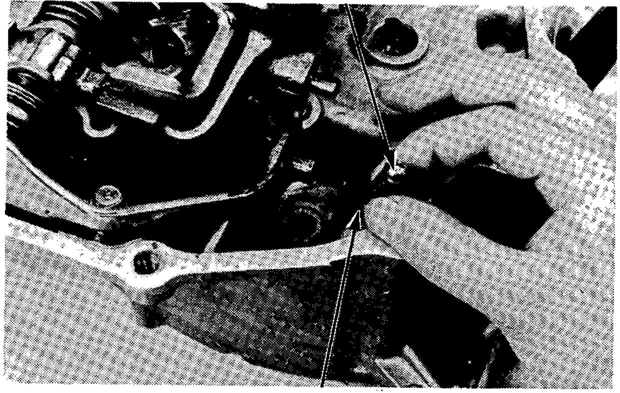
1. Pull out the reverse idler gear shaft and remove the gear.
2. Remove the dowel pin.


REVERSE IDLER GEAR
REVERSE IDLER GEAR SHAFT
DOWEL PIN

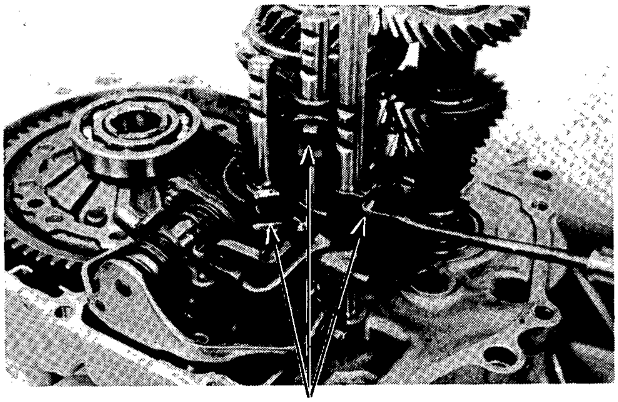
3. Remove the nut and the special spring washer on the reverse shift fork, then remove the reverse shift fork.


REVERSE SHIFT FORK
SPECIAL SPRING WASHER
NUT

4. Remove the detent ball and spring from the reverse shift fork.


DETENT BALL
DETENT SPRING

5. Bend down the tabs on the three locking plates and remove the bolts.


LOCKING PLATES

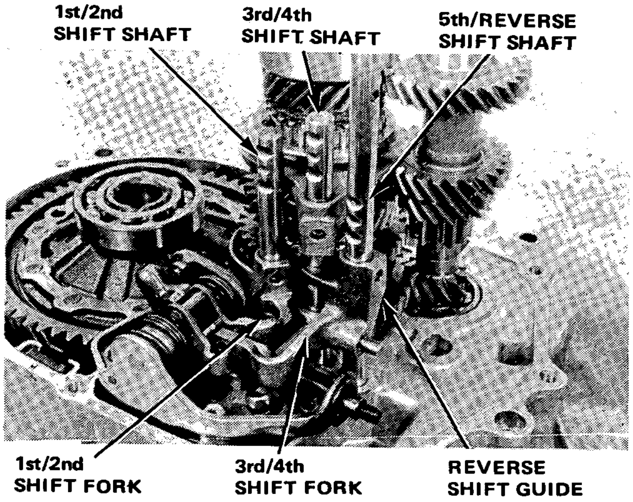
6. Remove the reverse shift shaft.

7. Remove the reverse shift guide.

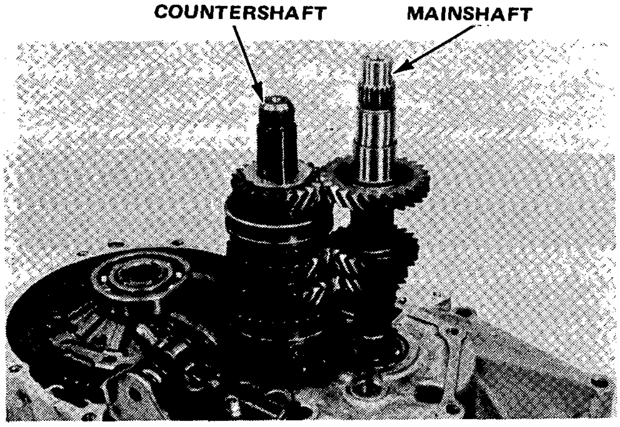
8. Remove the 1st/2nd gear shift shaft.

9. Remove the 3rd/4th gear shift shaft and shift fork.

10. Shift the synchro into the 2nd and remove the 1st/2nd gear shift fork.

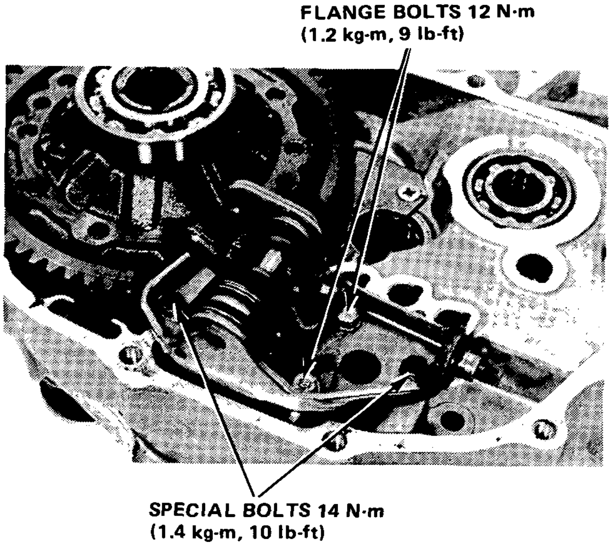

1st/2nd SHIFT SHAFT
3rd/4th SHIFT SHAFT
5th/REVERSE SHIFT SHAFT
1st/2nd SHIFT FORK
3rd/4th SHIFT FORK
REVERSE SHIFT GUIDE

11. Remove the countershaft and the mainshaft as an assembly.


COUNTERSHAFT
MAINSHAFT

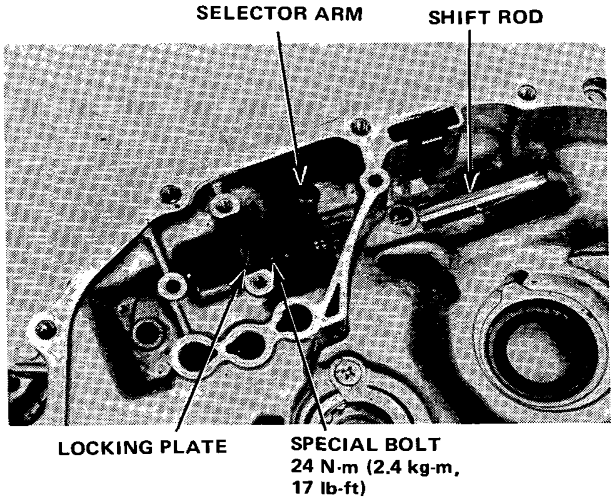
Shift arm Holder Removal

1. Remove the special bolts and the flange bolts and then remove the shift arm holder.


FLANGE BOLTS 12 N·m (1.2 kg-m, 9 lb-ft)
SPECIAL BOLTS 14 N·m (1.4 kg-m, 10 lb-ft)

Shift Rod Removal

1. Bend down the tab on the locking plate, remove the special bolt, then slip out the shift rod.


SELECTOR ARM
SHIFT ROD
LOCKING PLATE
SPECIAL BOLT 24 N·m (2.4 kg-m, 17 lb-ft)

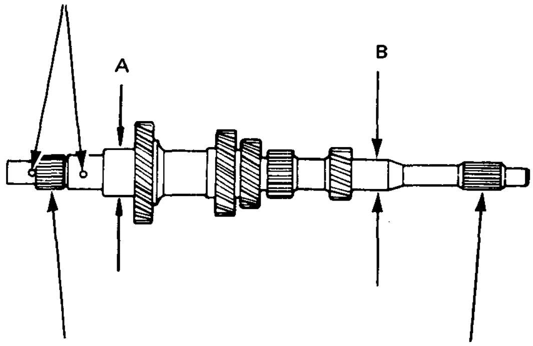
5-Speed Transmission

Mainshaft Inspection

1. Measure gear and bearing O.D.s.

Standard:	A:	27.997–28.010 mm (1.102–1.103 in)
	B:	21.987–22.0 mm (0.866–0.866 in)
Service Limit:	A:	27.94 mm (1.100 in)
	B:	21.93 mm (0.863 in)

Inspect oil passages for clogging.



Inspect for wear or damage.

Inspect for wear or damage.

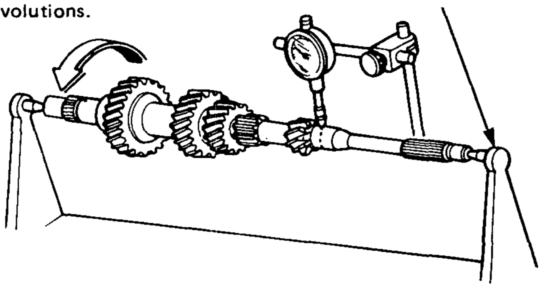
2. Replace the mainshaft if any readings are out of tolerance.

3. Inspect for runout.

Standard:	0.02 mm (0.0008 in)
Service Limit:	0.05 mm (0.0019 in)

Rotate two complete revolutions.

Support with lathe type tool or V-blocks



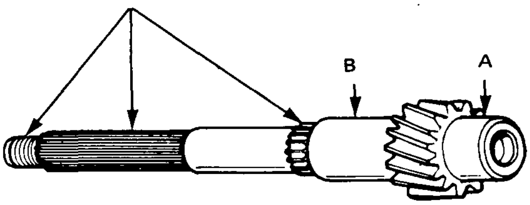
4. Replace the mainshaft if the reading is out of tolerance.

Countershaft Inspection

1. Measure gear and bearing O.D.s.

Standard:	A:	30.004–30.017 mm (1.181–1.182 in)
	B:	31.984–32.000 mm (1.259–1.260 in)
Service Limit:	A:	29.94 mm (1.179 in)
	B:	31.93 mm (1.257 in)

Inspect for wear or damage.



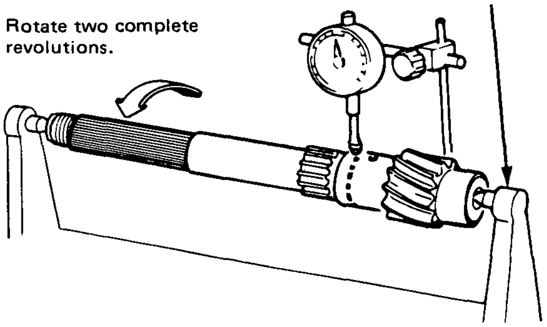
2. Replace the countershaft if any readings are out of tolerance.

3. Inspect for runout.

Standard:	0.02 mm (0.0008 in)
Service Limit:	0.05 mm (0.0019 in)

Rotate two complete revolutions.

Support with lathe type tool or V-blocks



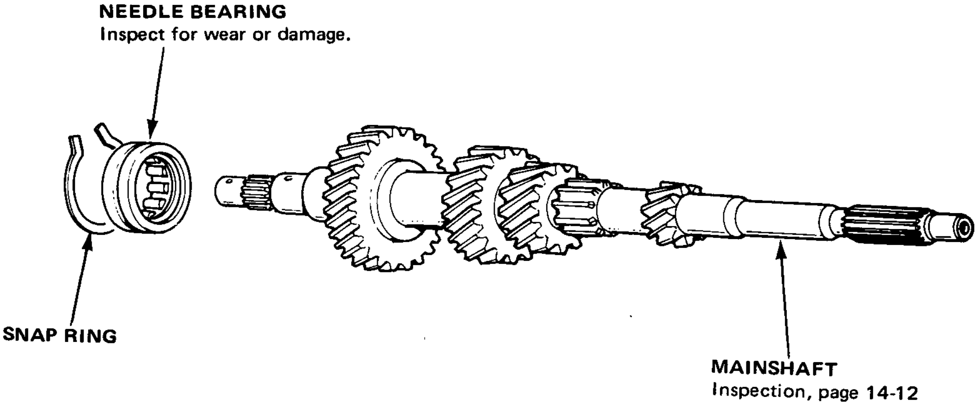
4. Replace the countershaft if the reading is out of tolerance.

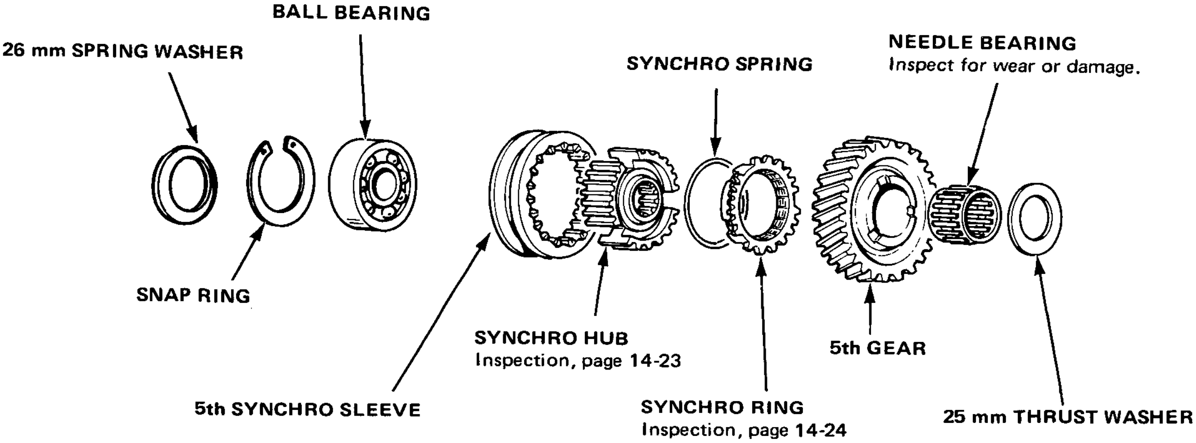
Mainshaft Index

NOTE:

- Clean all parts thoroughly in solvent and dry with compressed air.

Lubricate all parts with oil before reassembly.


NEEDLE BEARING
Inspect for wear or damage.
SNAP RING
MAINSHAFT
Inspection, page 14-12


BALL BEARING
26 mm SPRING WASHER
SYNCHRO SPRING
NEEDLE BEARING
Inspect for wear or damage.
SNAP RING
SYNCHRO HUB
Inspection, page 14-23
5th GEAR
5th SYNCHRO SLEEVE
SYNCHRO RING
Inspection, page 14-24
25 mm THRUST WASHER

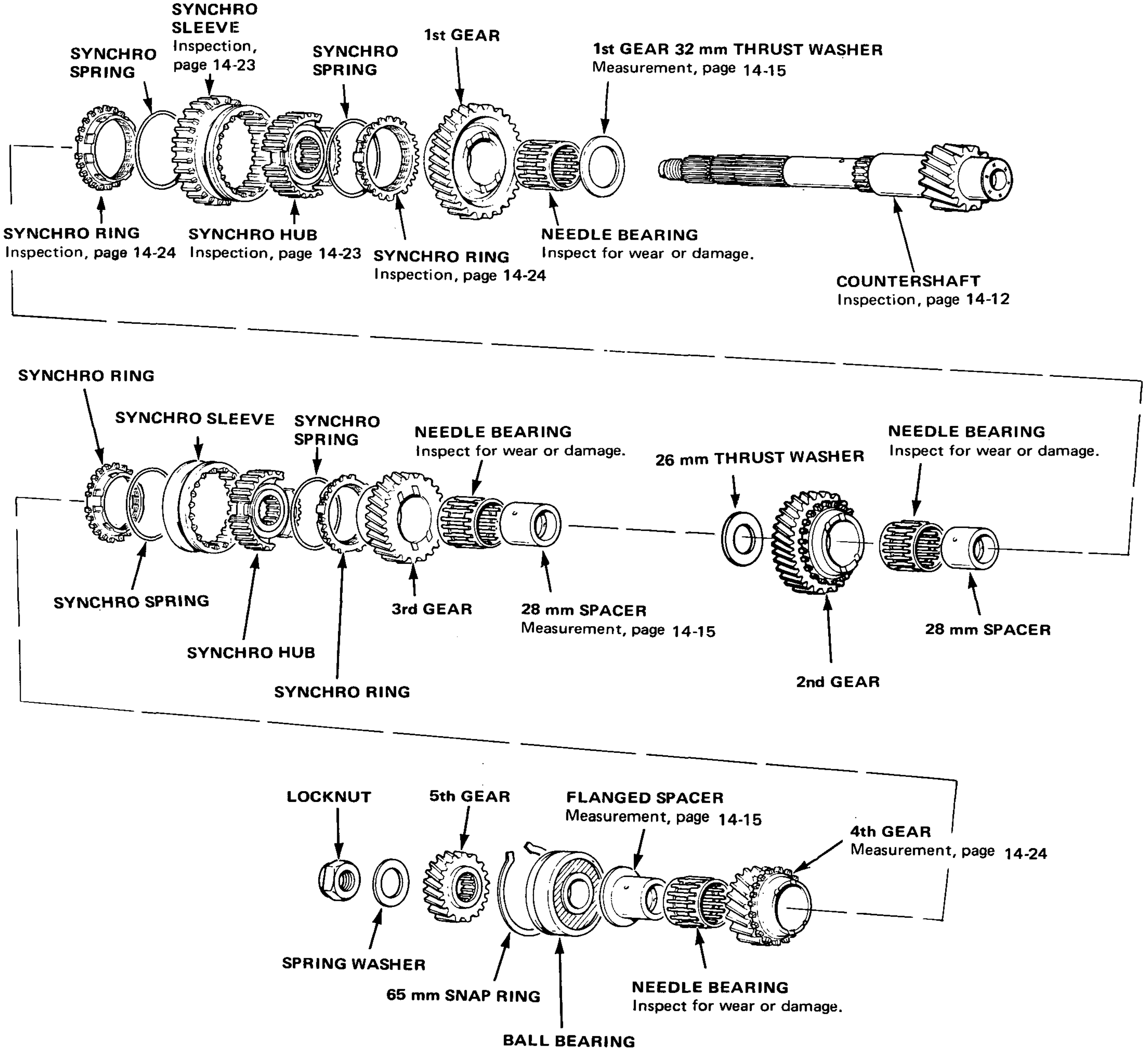
5-Speed Transmission

Countershaft Index

NOTE:

- Clean all parts thoroughly in solvent and dry with compressed air.
- The 28 mm spacers should be marked as they are removed, so that they can be reinstalled correctly.

OIL Lubricate all parts with oil before reassembly.


SYNCHRO SPRING
SYNCHRO SLEEVE Inspection, page 14-23
SYNCHRO SPRING
1st GEAR
1st GEAR 32 mm THRUST WASHER Measurement, page 14-15
SYNCHRO RING Inspection, page 14-24
SYNCHRO HUB Inspection, page 14-23
SYNCHRO RING Inspection, page 14-24
NEEDLE BEARING Inspect for wear or damage.
COUNTERSHAFT Inspection, page 14-12
SYNCHRO RING
SYNCHRO SLEEVE
SYNCHRO SPRING
NEEDLE BEARING Inspect for wear or damage.
26 mm THRUST WASHER
NEEDLE BEARING Inspect for wear or damage.
SYNCHRO SPRING
3rd GEAR
28 mm SPACER Measurement, page 14-15
28 mm SPACER
SYNCHRO HUB
SYNCHRO RING
2nd GEAR
LOCKNUT
5th GEAR
FLANGED SPACER Measurement, page 14-15
4th GEAR Measurement, page 14-24
SPRING WASHER
65 mm SNAP RING
NEEDLE BEARING Inspect for wear or damage.
BALL BEARING

Countershaft Clearance Measurement

NOTE: On adjusting the countershaft clearance, select the correct spacer 28 mm, flanged spacer, and 1st gear thrust washer from the tables below.

1. Assemble the mainshaft and countershaft as shown below.

THRUST WASHER THICKNESS

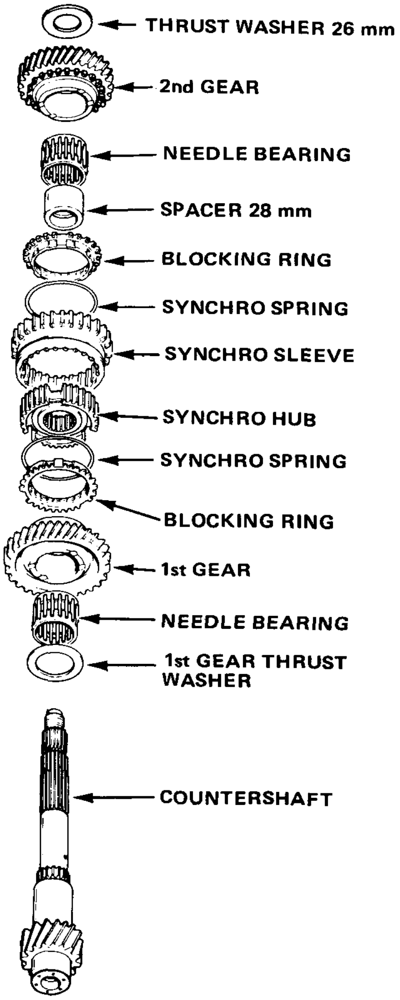
CLASS	THICKNESS
A	1.95–1.98 mm (0.077–0.078 in)
B	1.92–1.95 mm (0.076–0.077 in)
C	1.89–1.92 mm (0.074–0.076 in)

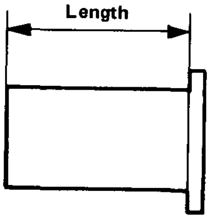
SPACER 28 mm

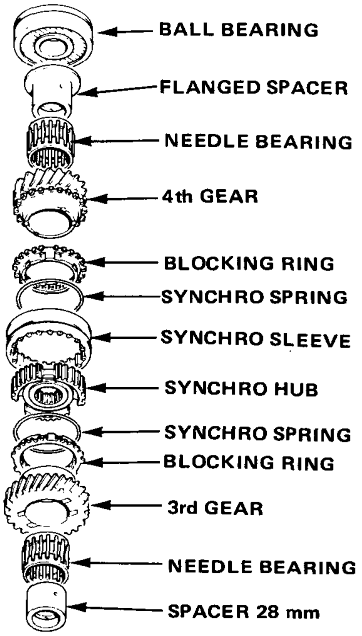
LENGTH
28.01–28.04 mm (1.103–1.104 in)
28.04–28.07 mm (1.104–1.105 in)
28.07–28.10 mm (1.105–1.106 in)
28.10–28.13 mm (1.106–1.107 in)

FLANGED SPACER

LENGTH
28.01–28.04 mm (1.103–1.104 in)
28.04–28.07 mm (1.104–1.105 in)
28.07–28.10 mm (1.105–1.106 in)
28.10–28.13 mm (1.106–1.107 in)


THRUST WASHER 26 mm
2nd GEAR
NEEDLE BEARING
SPACER 28 mm
BLOCKING RING
SYNCHRO SPRING
SYNCHRO SLEEVE
SYNCHRO HUB
SYNCHRO SPRING
BLOCKING RING
1st GEAR
NEEDLE BEARING
1st GEAR THRUST WASHER
COUNTERSHAFT



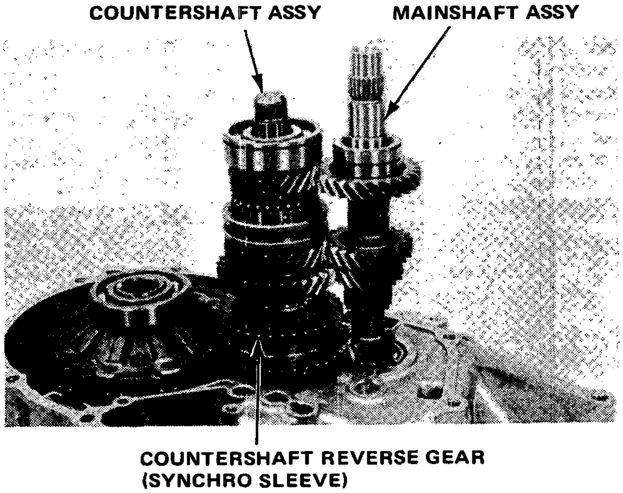

BALL BEARING
FLANGED SPACER
NEEDLE BEARING
4th GEAR
BLOCKING RING
SYNCHRO SPRING
SYNCHRO SLEEVE
SYNCHRO HUB
SYNCHRO SPRING
BLOCKING RING
3rd GEAR
NEEDLE BEARING
SPACER 28 mm

(cont'd)

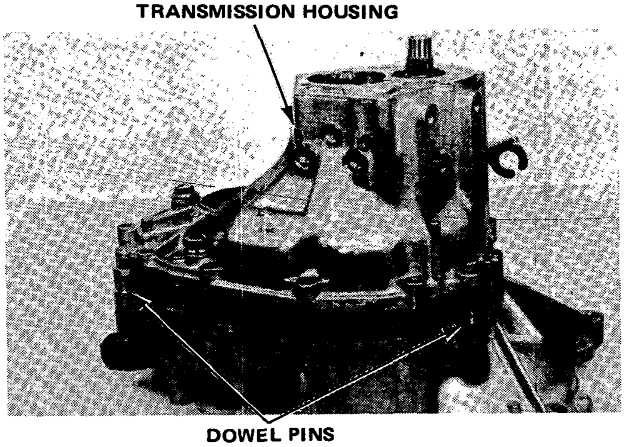
Countershaft Clearance Measurement (cont'd)

2. Install the mainshaft and countershaft as an assembly.

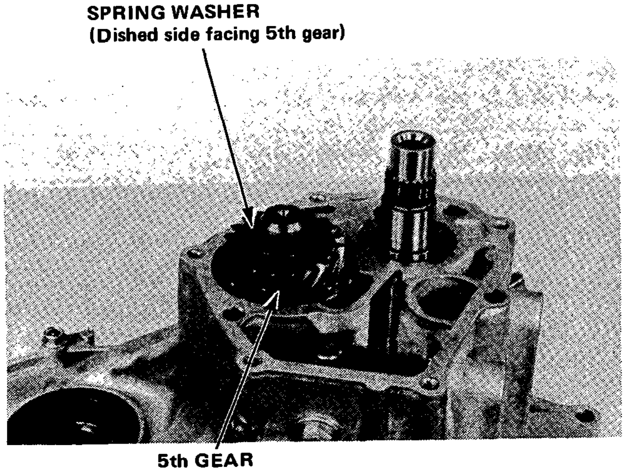
3. Lift the countershaft 2nd and reverse gear to shift into 2nd gear.


COUNTERSHAFT ASSY
MAINSHAFT ASSY
COUNTERSHAFT REVERSE GEAR
(SYNCHRO SLEEVE)

4. Install the dowel pins in clutch housing, then install transmission housing.

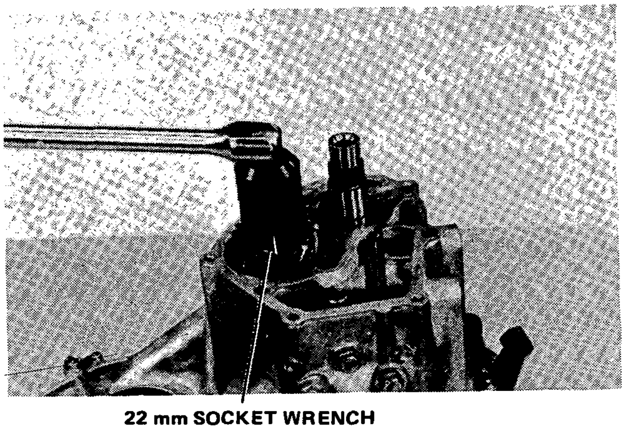

TRANSMISSION HOUSING
DOWEL PINS

5. Install the countershaft 5th gear and spring washer.


SPRING WASHER
(Dished side facing 5th gear)
5th GEAR

6. Install the mainshaft holder. See page 14-8.

7. Install the countershaft locknut. Tighten to 90 N·m (9.0 kg-m, 65 lb-ft).


22 mm SOCKET WRENCH

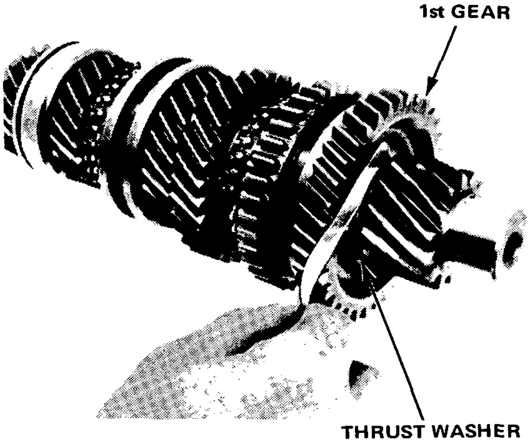
8. Remove the transmission housing by using housing puller. See page 14-9.

9. Remove the countershaft assembly and mainshaft assembly.

- If any measurement is out of tolerance, the countershaft assembly must be disassembled and spacer collars or the thrust washer changed (see page 14-15).

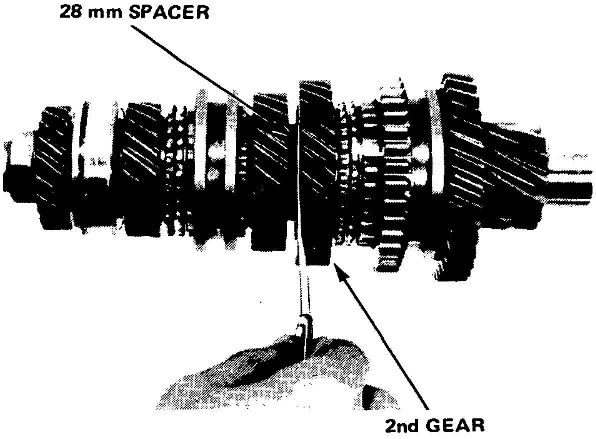
10. Measure the clearance between thrust washer and 1st gear.

1st Gear Clearance
Standard (New): 0.03–0.08 mm (0.001–0.003 in.)
Service Limit: 0.18 mm (0.007 in.)


1st GEAR
THRUST WASHER

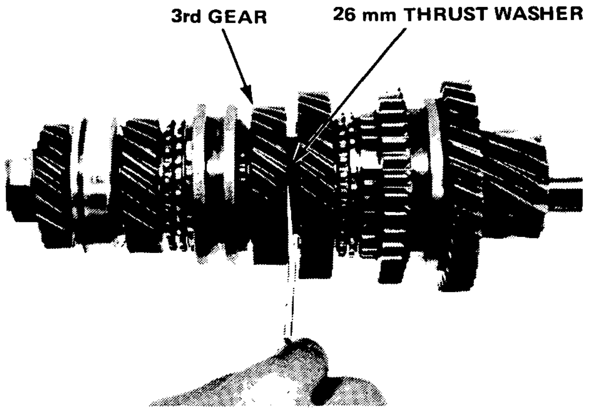
11. Measure the clearance between the 28 mm spacer and 2nd gear.

2nd Gear Clearance:
Standard (New): 0.05–0.12 mm (0.002–0.005 in.)
Service Limit: 0.18 mm (0.007 in.)


28 mm SPACER
2nd GEAR

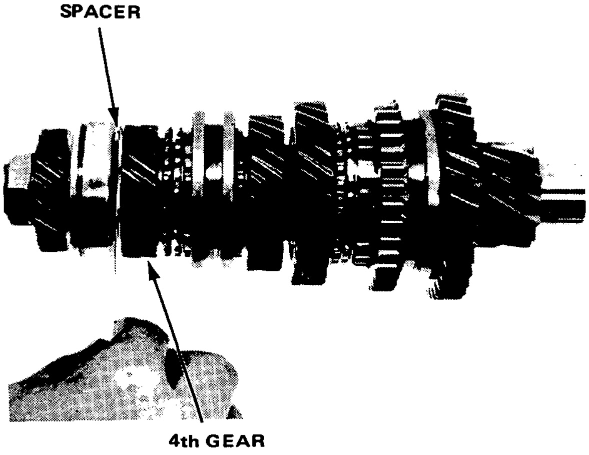
12. Measure the clearance between the 26 mm thrust washer and 3rd gear.

3rd Gear
Standard: 0.05–0.12 mm (0.002–0.005 in.)
Service Limit: (0.007 in.)


3rd GEAR
26 mm THRUST WASHER

13. Measure the clearance between 4th gear and its spacer.

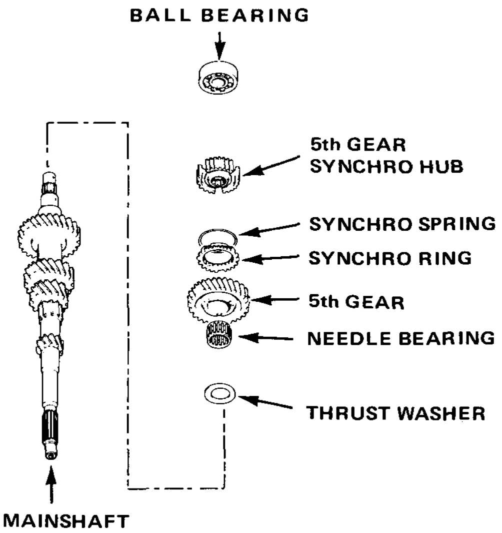
4th Gear
Standard: 0.05–0.12 mm (0.002–0.005 in.)
Service Limit: 0.18 mm (0.007 in.)


SPACER
4th GEAR

5-Speed Transmission

Mainshaft Assembly Clearance

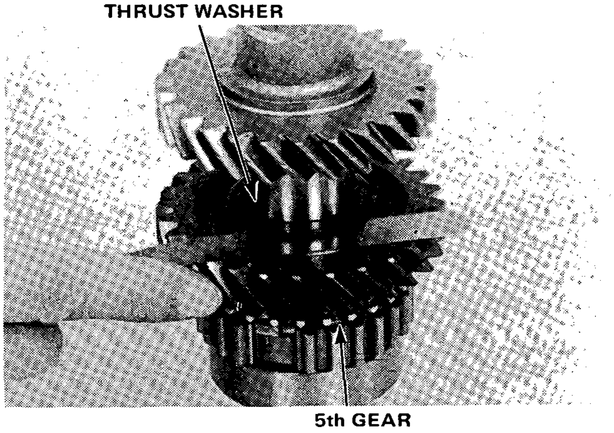
1. Install the parts below onto the mainshaft.


BALL BEARING
5th GEAR SYNCHRO HUB
SYNCHRO SPRING
SYNCHRO RING
5th GEAR
NEEDLE BEARING
THRUST WASHER
MAINSHAFT

2. Hold the ball bearing outer race with a socket and compress it to 30 kg (66 lb).

3. Measure clearance between 5th gear and its thrust washer.

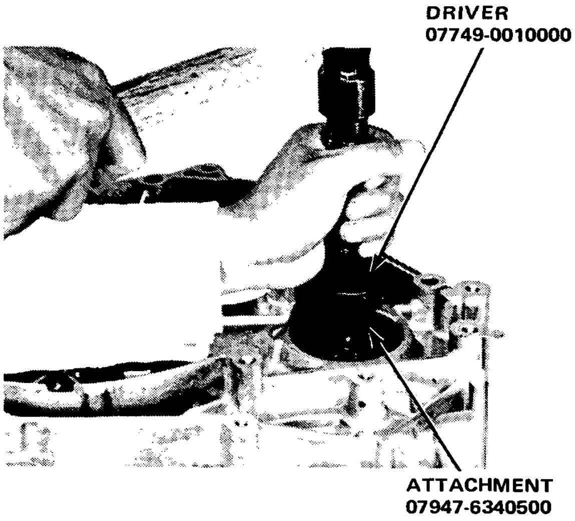
Standard: **0.05–0.38 mm (0.0020–0.0150 in.)**
Service Limit: **0.4 mm (0.016 in.)**


THRUST WASHER
5th GEAR

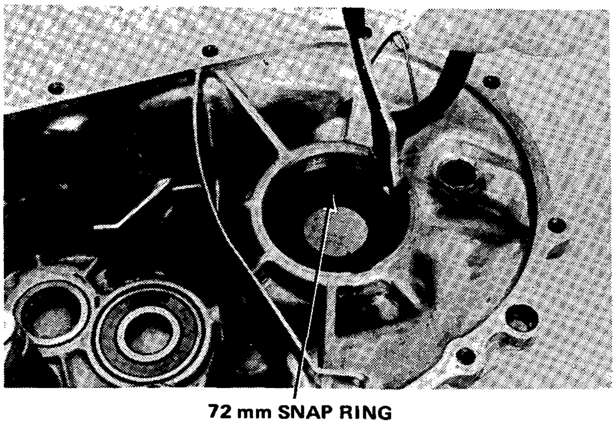
4. Replace the thrust washer if the clearance exceeds the service limit.
Recheck the clearance with the new thrust washer. If the clearance is still over the service limit, replace 5th gear and recheck.

Differential Oil Seal Removal

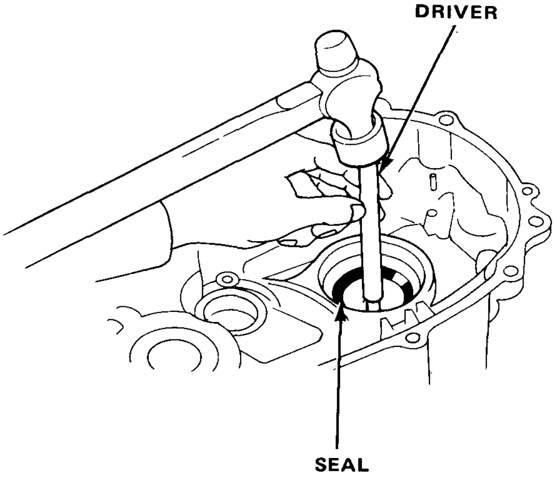
1. If seals are to be replaced, or if the differential needs repair, remove the differential assembly. Refer to section 17 for differential repair.


DRIVER
07749-0010000
ATTACHMENT
07947-6340500

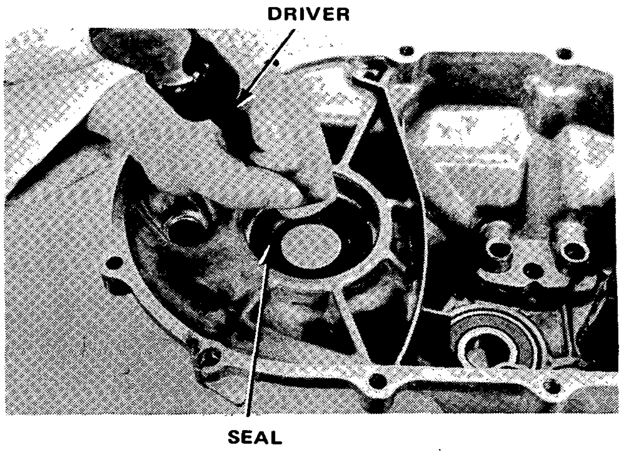
2. Remove the 72 mm snap ring in the transmission housing.


72 mm SNAP RING

3. Drive out the seal from the clutch housing.


DRIVER
SEAL

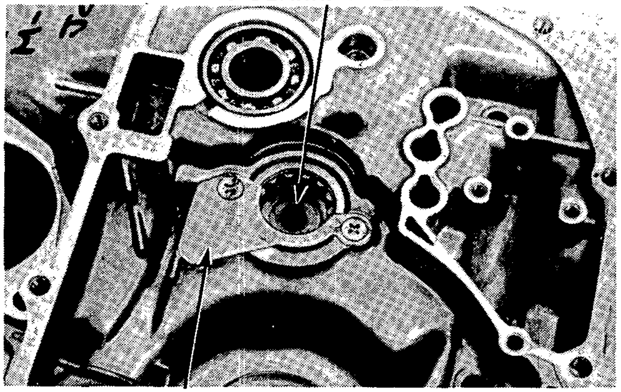
4. Drive out the seal from the transmission housing.


DRIVER
SEAL

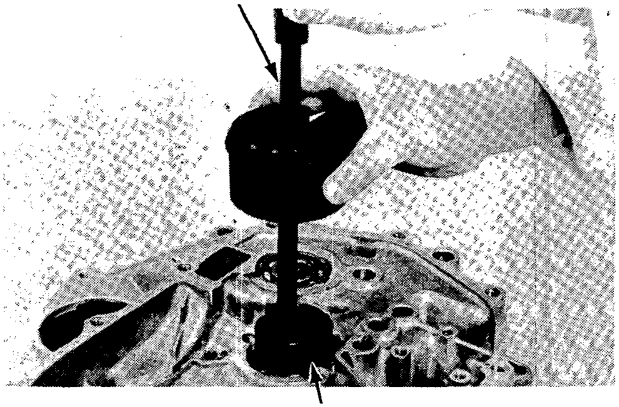
5-Speed Transmission

Countershaft Bearing Replacement

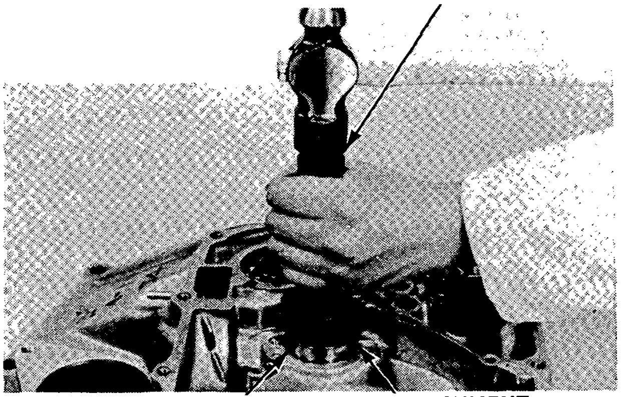
1. Remove the bearing retainer plate.


OIL BARRIER PLATE
BEARING RETAINER PLATE

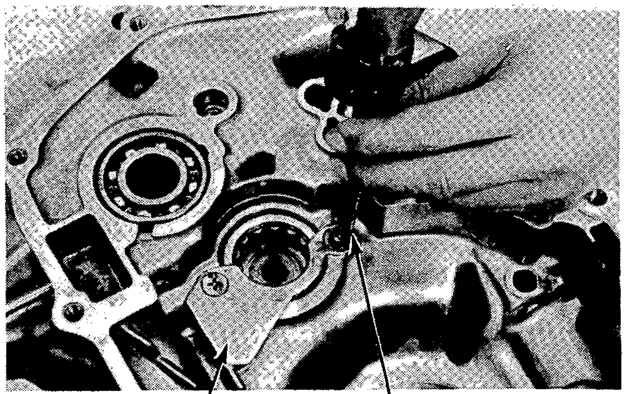
2. Insert Bearing Remover with attachment into countershaft bearing.
3. Raise slide hammer rapidly and strike against handle. Repeat several times to remove bearing.


BEARING REMOVER
07936-6340000
REMOVER ATTACHMENT
07936-6340100

4. Remove the oil barrier plate, wash thoroughly, then reinstall it.
5. Drive in the countershaft needle bearing with the special tools.


DRIVER
07749-0100000
COUNTERSHAFT
NEEDLE BEARING
ATTACHMENT
07746-0010300

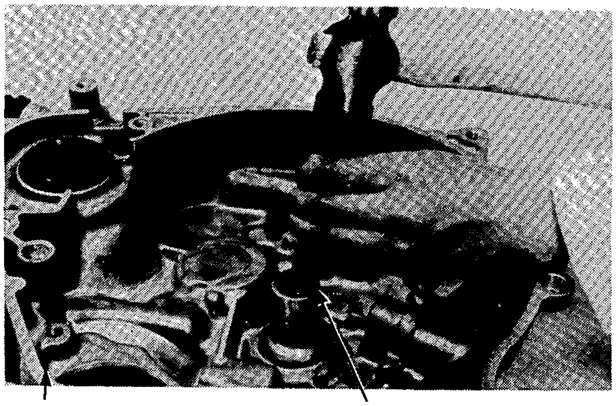
6. Reinstall the bearing retainer plate. Tighten the screws with an impact driver, then stake the screw heads.


Stake.
BEARING
RETAINER PLATE

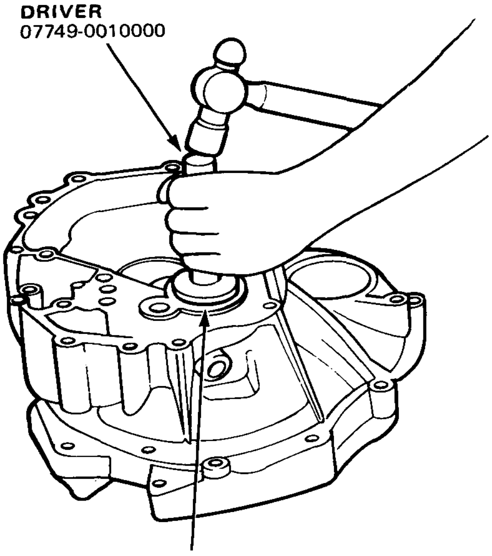
Mainshaft Bearing Replacement

1. Remove the mainshaft bearing and seal from the clutch housing by driving out with a drift.

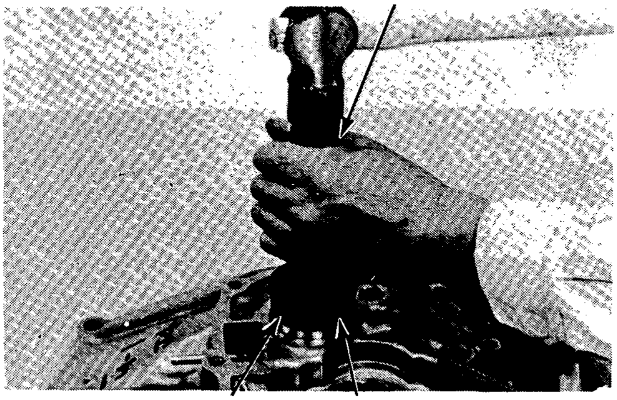
   NOTE: Always install a new bearing and seal. Do not reinstall old ones.


CLUTCH HOUSING
DRIFT

2. Drive in the mainshaft oil seal.


DRIVER
07749-0010000
ATTACHMENT 32 x 35
07746-0010100

3. Drive in the mainshaft bearing with a support block placed under the case to support the bearing boss.

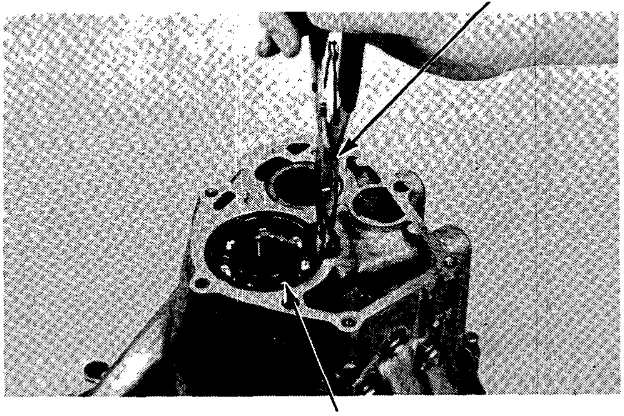

DRIVER
07749-0010000
MAINSHAFT BEARING
ATTACHMENT
07746-0010400

Mainshaft/Countershaft Bearing Replacement (Transmission Housing)

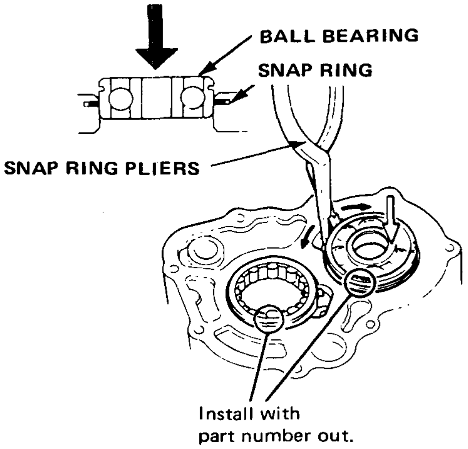
1. Remove the mainshaft and countershaft bearings from transmission housing; expand each snap ring with snap ring pliers, then push bearing out by hand.

   CAUTION: To avoid damaging the housing, fully expand each snap ring before pushing out the bearing.

   NOTE: Do not remove the snap rings unless it is necessary to clean the grooves in the housing.

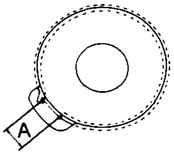


2. Expanding each snap ring with snap ring pliers, insert the new bearing partway into it (part number facing out), then release pliers. Push the bearing down into the transmission until ring snaps in place around it.



3. Check that the snap ring is securely seated in both the grooves of the bearing and the case.

NOTE: To confirm proper snap ring seating and condition, measure snap ring gap A as installed:



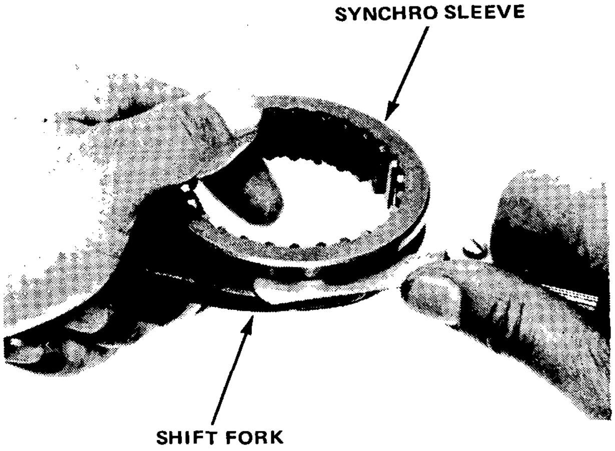
Bearing	Dimension A as installed
Mainshaft	3.5–4.7 mm (0.14–0.19 in.)
Countershaft	5.7–8.8 mm (0.22–0.35 in.)

Reseat or carefully replace the snap ring if the gap is outside the specification.

Shift Fork to Synchro Sleeve Clearance

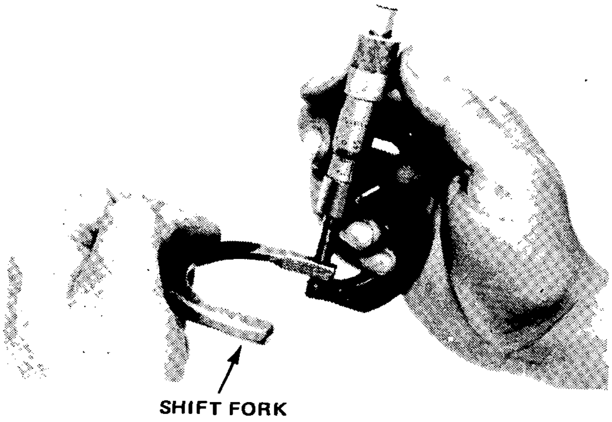
1. Check clearance between each shift fork and its matching synchro sleeve.

   Standard: 0.45–0.65 mm
   (0.018–0.026 in)
   Service Limit: 1.0 mm (0.039 in)



2. If the clearance exceeds the service limit, measure the thickness of the shift fork fingers.

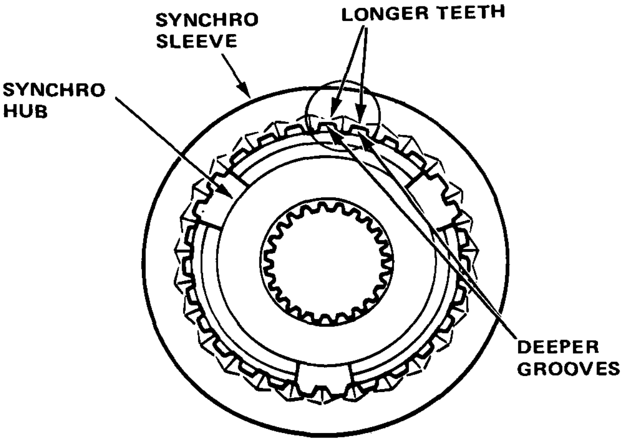
   Finger Thickness:
   (All shift forks)
   Standard: 6.4–6.5 mm (0.252–0.256 in)
   Service Limit: 6.0 mm (0.236 in)



3. If any shift forks are replaced, recheck fork-to-sleeve clearance. If still out of tolerance, replace the synchro sleeve and recheck.

Installing Synchro Hubs in Sleevcs

Each synchro sleeve has three sets of longer teeth (120 degrees apart) that must be matched with the three sets of deeper grooves in the hub when assembled.

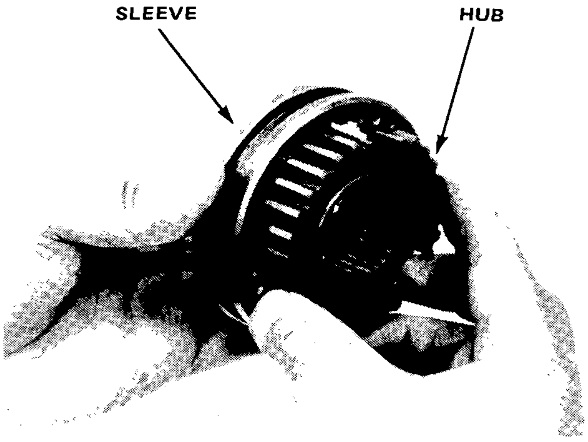


Synchro Sleeve and Hub Inspection

1. Inspect the gear teeth on all synchro hubs and sleeves for rounded off corners, indicating wear.

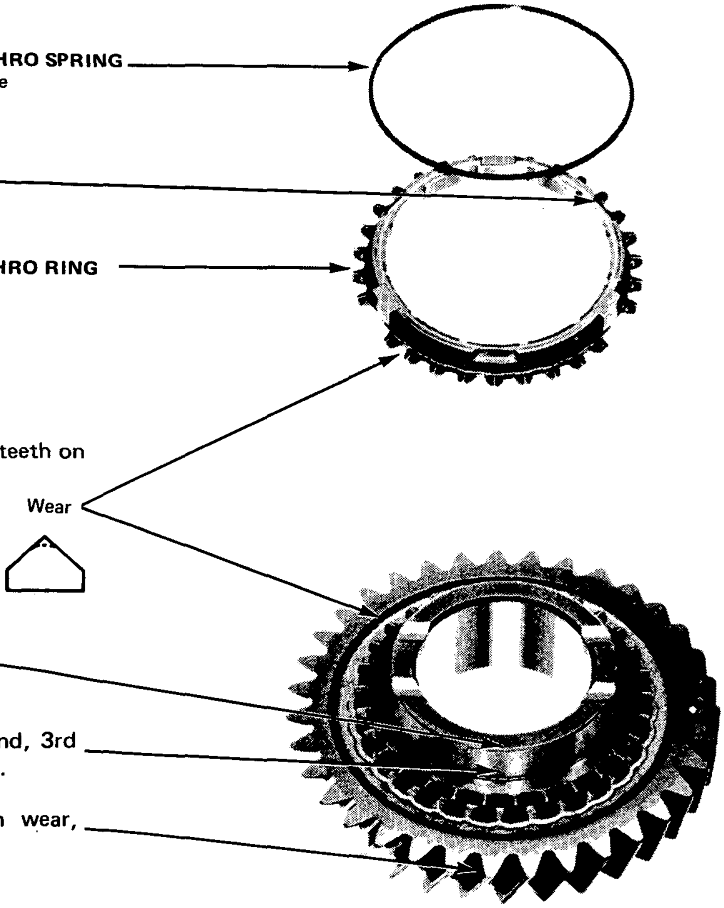
2. Install each hub in its mating sleeve and check for freedom of movement.

   NOTE: If replacement is required, always replace the synchro sleeve and hub as a unit.



5-Speed Transmission

Gear and Synchro Ring Inspections

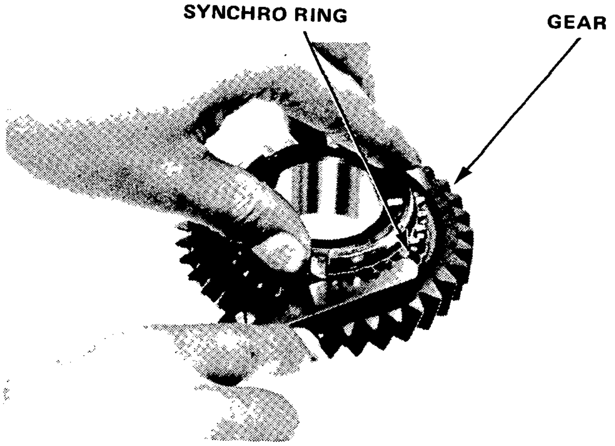


1. Inspect the inside of synchro ring for wear.
2. Inspect the synchro ring teeth and matching teeth on gear for wear (rounded off).
3. Inspect the gear hub thrust surface for wear.
4. Inspect the cone surface for wear on 1st, 2nd, 3rd and 4th countershaft gears; 5th mainshaft gear.
5. Inspect the teeth on all gears for uneven wear, scoring, galling, cracks.
6. Place the synchro ring on matching gear cone and rotate until it stops (approx. 10 to 20 degrees), then measure the clearance between ring and gear.

   Ring-to-Gear Clearance:

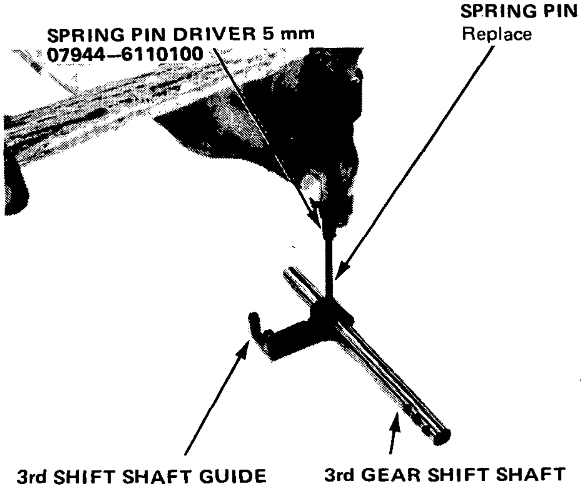
   Standard (New): 0.85–1.1 mm (0.033–0.043 in.)
   Service Limit: 0.4 mm (0.016 in.)

7. Separate the synchro ring and gear, and coat them with oil.
8. Install the synchro spring on synchro ring.
9. Put the synchro ring on gear cone again, rotate until it stops, then set it aside for later reassembly.



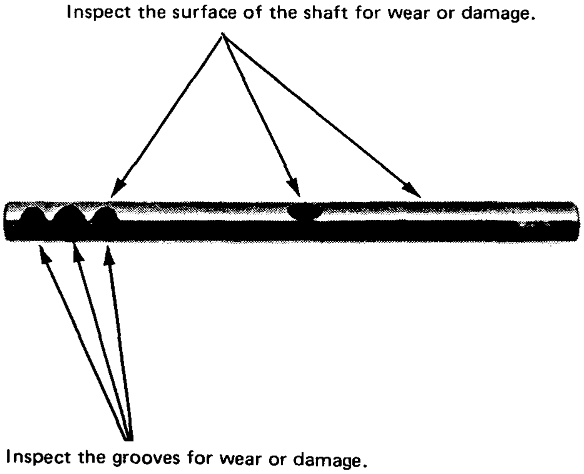
Shift Shaft Inspection

1. Remove the 3rd gear shift shaft guide from its shaft with a spring pin driver.



SPRING PIN DRIVER 5 mm
07944–6110100
SPRING PIN
Replace
3rd SHIFT SHAFT GUIDE
3rd GEAR SHIFT SHAFT

2. Inspect the shift shaft for wear or damage.

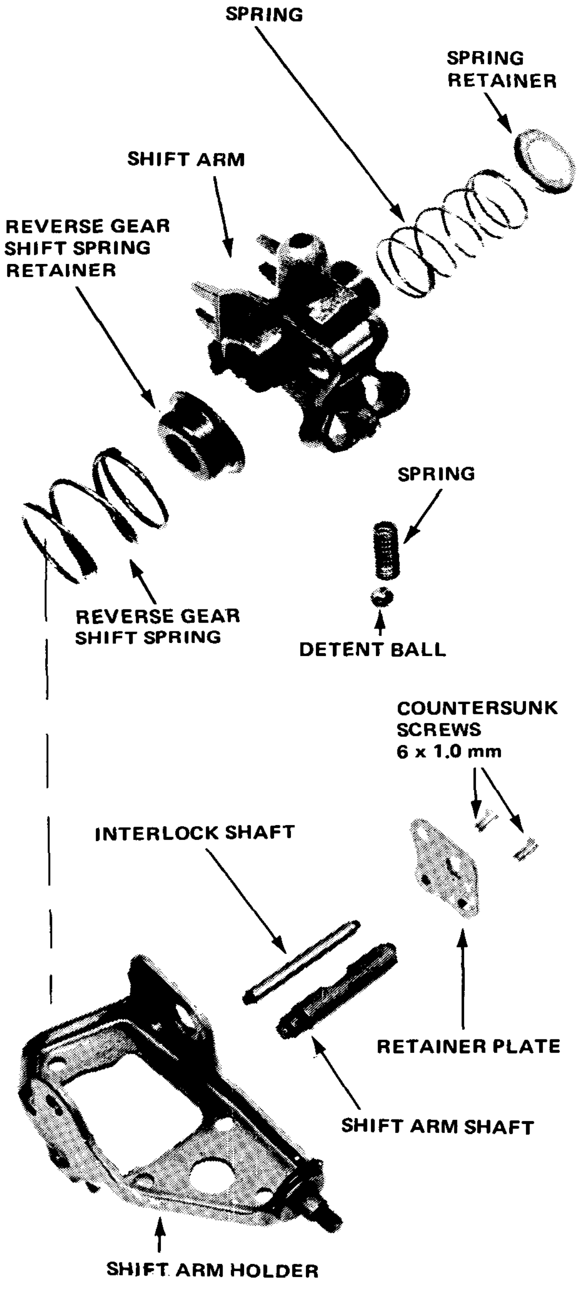


Inspect the surface of the shaft for wear or damage.
Inspect the grooves for wear or damage.

5-Speed Transmission

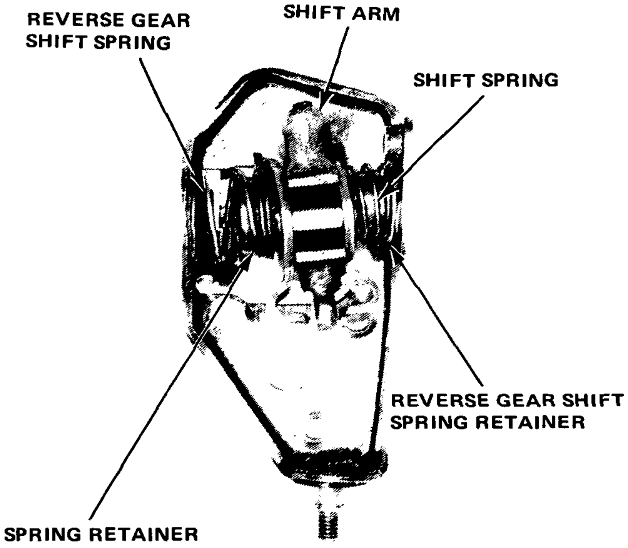
Shift Arm Holder Disassembly

1. Use an inpact driver to remove the retainer plate screws, then remove the retainer plate.
2. Pull out the shift arm shaft and interlock shaft.
3. Remove the detent ball and spring.
4. Remove the shift arm, shift springs, and spring retainers.

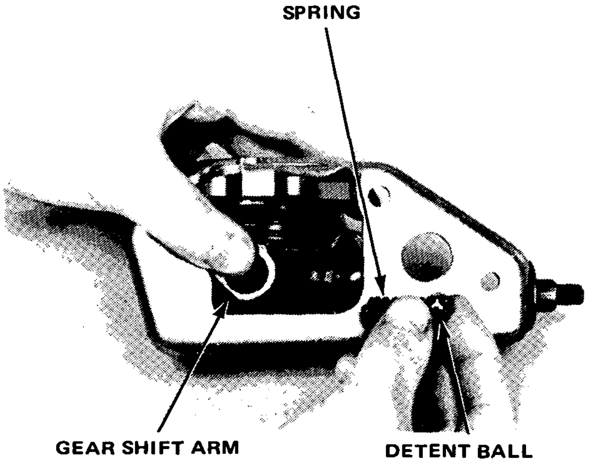

SPRING
SPRING RETAINER
SHIFT ARM
REVERSE GEAR SHIFT SPRING RETAINER
SPRING
REVERSE GEAR SHIFT SPRING
DETENT BALL
COUNTERSUNK SCREWS 6 x 1.0 mm
INTERLOCK SHAFT
RETAINER PLATE
SHIFT ARM SHAFT
SHIFT ARM HOLDER

Shift Arm Holder Reassembly

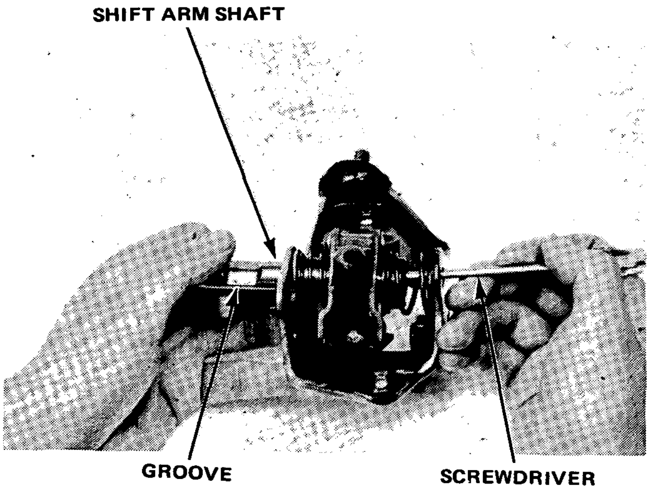
1. Install the shift arm, shift springs, and spring retainers in shift arm holder.


REVERSE GEAR SHIFT SPRING
SHIFT ARM
SHIFT SPRING
REVERSE GEAR SHIFT SPRING RETAINER
SPRING RETAINER

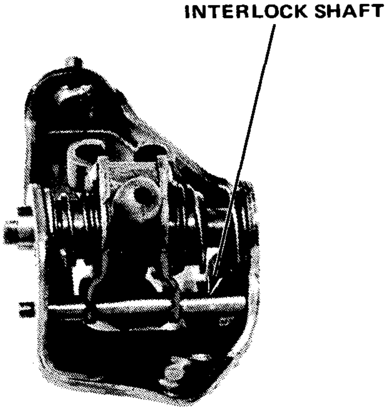
2. Turn the shift arm holder upside down and place the detent ball and spring in the shift arm.


SPRING
GEAR SHIFT ARM
DETENT BALL

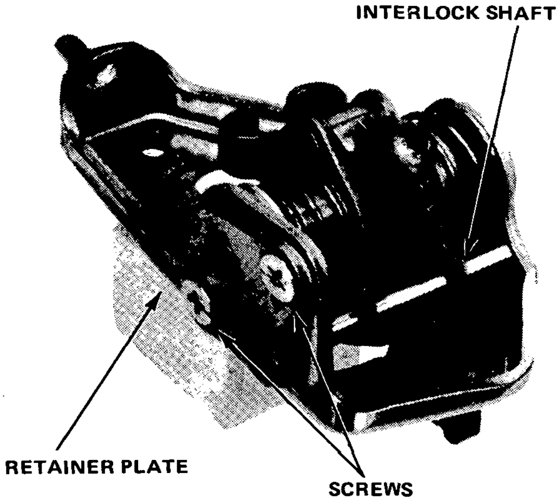
3. Hold the detent ball in place with a small screwdriver, align groove in shift arm shaft with detent ball, then insert the shaft through shift arm holder and shift arm.


SHIFT ARM SHAFT
GROOVE
SCREWDRIVER

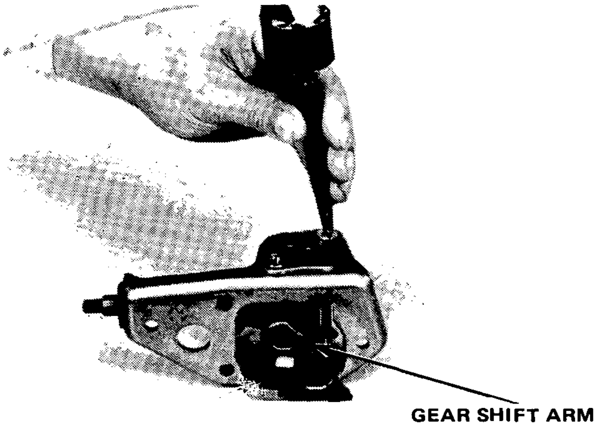
4. Insert the interlock shaft.


INTERLOCK SHAFT

5. Install the retainer plate.


INTERLOCK SHAFT
RETAINER PLATE
SCREWS

6. Tighten the retainer plate screws with impact driver, then stake the screw heads.

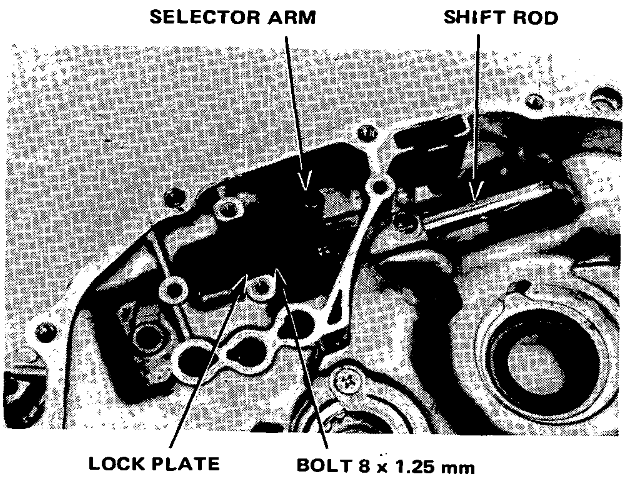

GEAR SHIFT ARM

NOTE: After reassembly, check the gear shift arm for free movement.

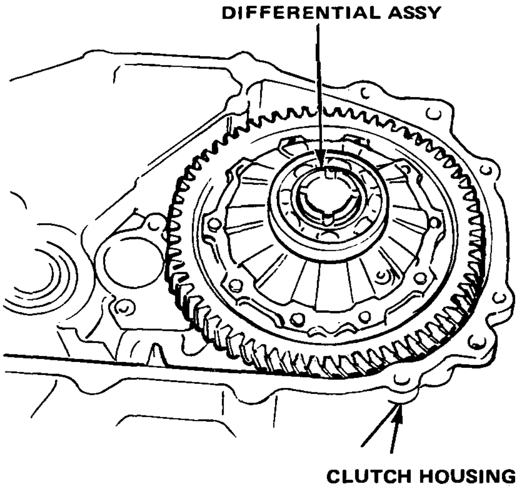
Transmission Reassembly

1. Clean all liquid gasket residue from the mating surfaces of transmission and clutch housings.

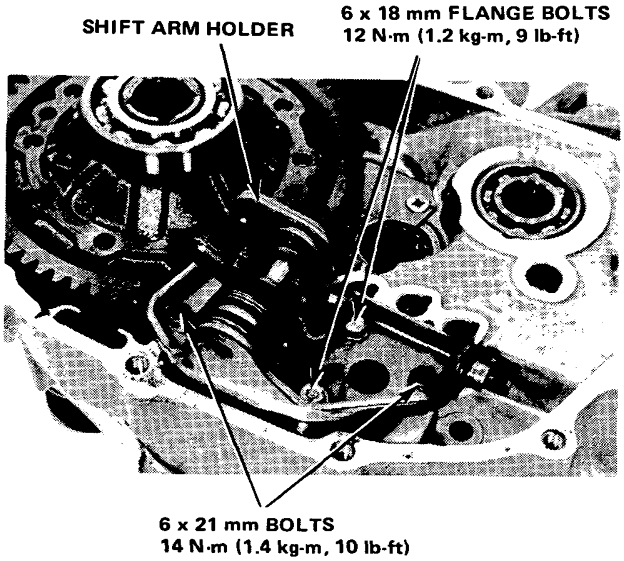
2. Install the shift rod, selector arm, new lock plate and bolt. Bend the lock tab on lock plate over against bolt head.


SELECTOR ARM
SHIFT ROD
LOCK PLATE
BOLT 8 x 1.25 mm

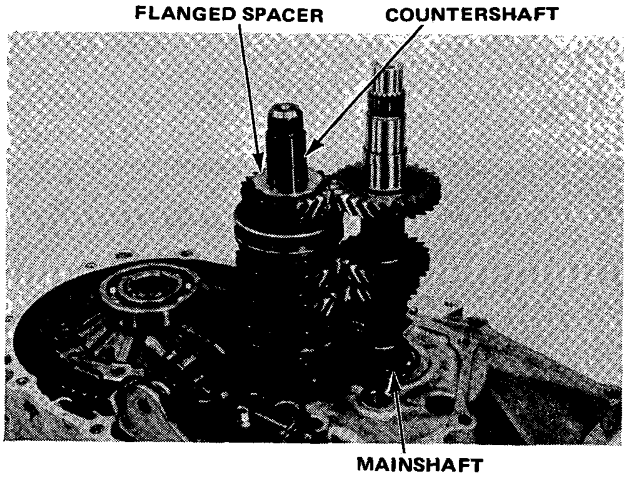
3. Install the 72 mm snap ring in the clutch housing, then install the differential (Section 17).


DIFFERENTIAL ASSY
CLUTCH HOUSING

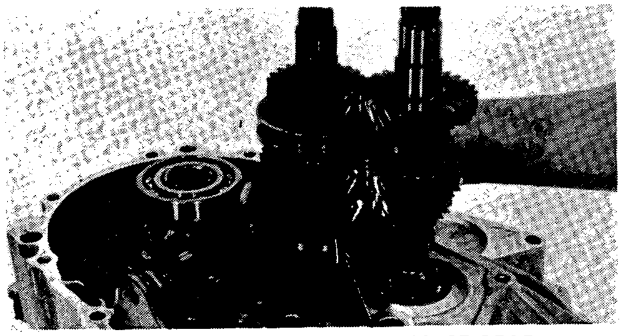
4. Align the shift arm with selector arm and install the shift arm holder. Install the bolts, using the correct bolt in each hole, and torque as shown.


SHIFT ARM HOLDER
6 x 18 mm FLANGE BOLTS
12 N·m (1.2 kg-m, 9 lb-ft)
6 x 21 mm BOLTS
14 N·m (1.4 kg-m, 10 lb-ft)

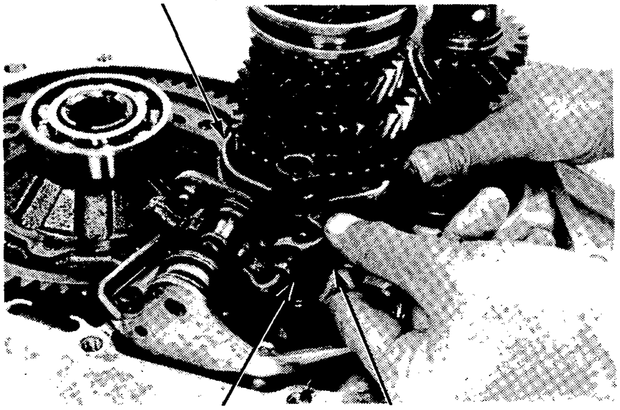
5. Install the mainshaft and countershaft as an assembly.


FLANGED SPACER
COUNTERSHAFT
MAINSHAFT

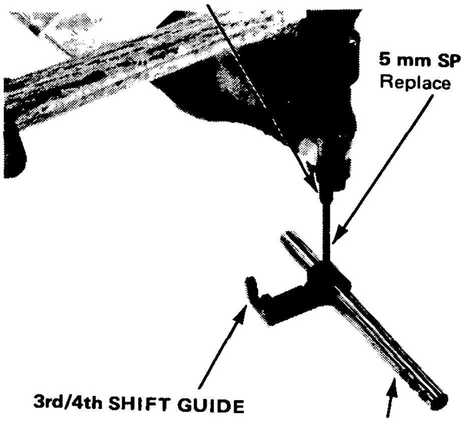
6. Lift the countershaft 1st and 2nd synchro sleeve to shift into 2nd gear.


COUNTER REVERSE GEAR

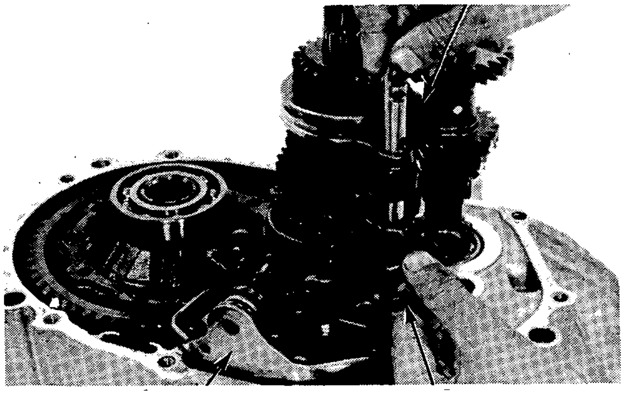
7. Install the 1st/2nd gear shift fork on synchro sleeve, then rotate into place so that lugs on back of fork fit over shift arm.


1st/2nd SHIFT FORK
SHIFT ARM
LUG

8. Insert the 3rd/4th shift fork shaft into 3rd/4th shift guide, and install the 5 mm spring pin as shown.


5 mm PIN PUNCH
5 mm SPRING PIN
Replace
3rd/4th SHIFT GUIDE
3rd/4th SHIFT SHAFT

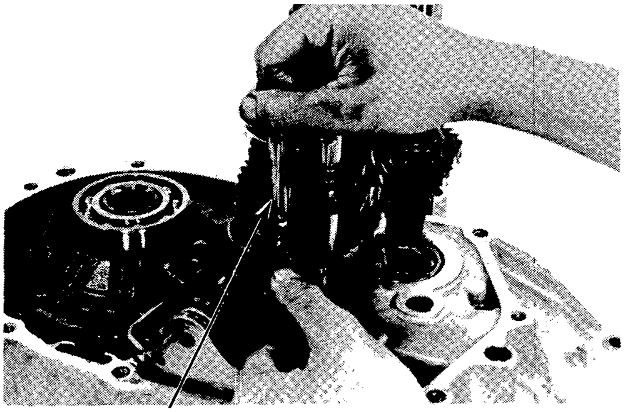
9. Insert the 3rd/4th shift fork shaft into 3rd/4th shift fork, then install the shift fork and hook shift guide to shift arm.


3rd/4th SHIFT FORK
SHIFT ARM
3rd/4th SHIFT GUIDE

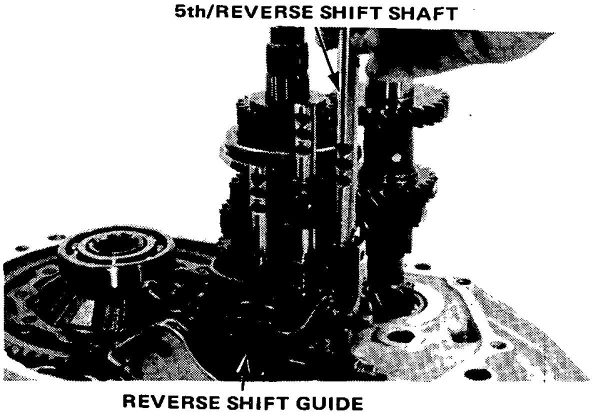
(cont'd)

Transmission Reassembly(cont'd)

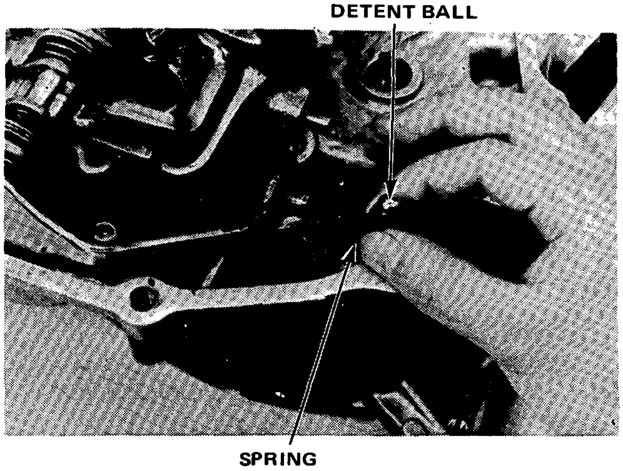
10. Install the 1st/2nd shift shaft.


1st/2nd SHIFT SHAFT

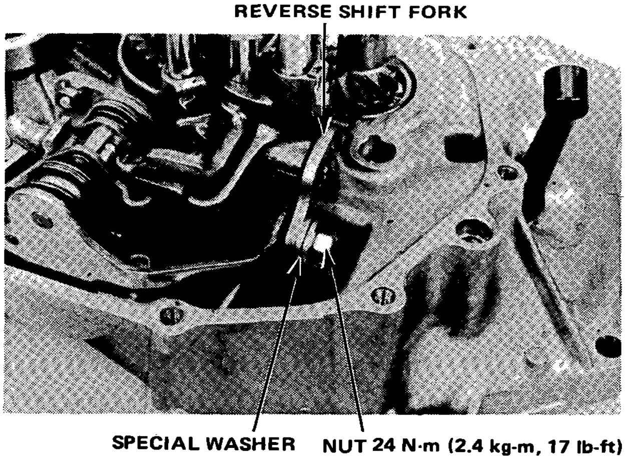
11. Hook the 5th/reverse shift guide to shift arm, then install the shift shaft.

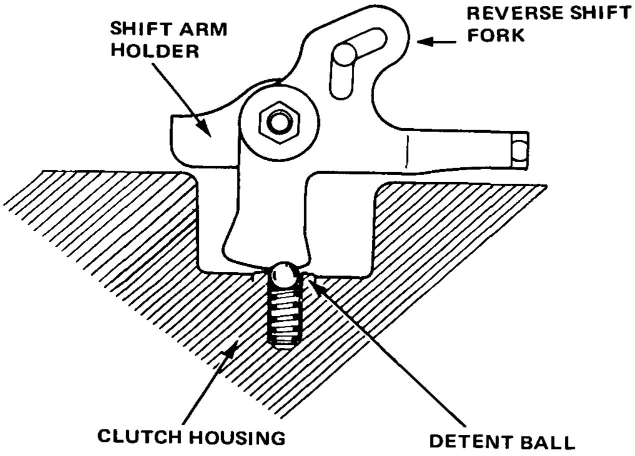

5th/REVERSE SHIFT SHAFT
REVERSE SHIFT GUIDE

12. Install the spring and detent ball in hole in clutch housing.


DETENT BALL
SPRING

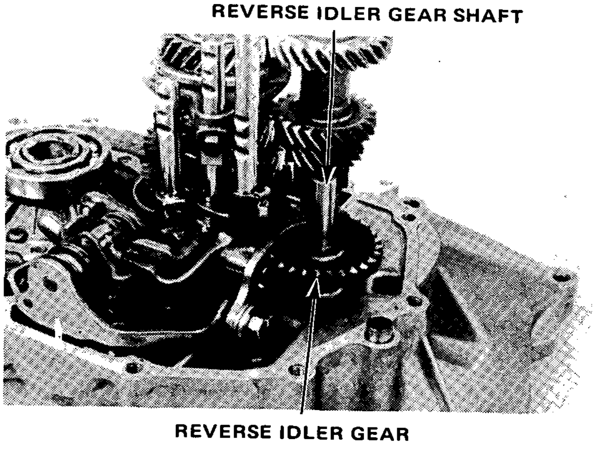
13. Install the reverse shift fork with special washer and nut.


REVERSE SHIFT FORK
SPECIAL WASHER
NUT 24 N·m (2.4 kg-m, 17 lb-ft)

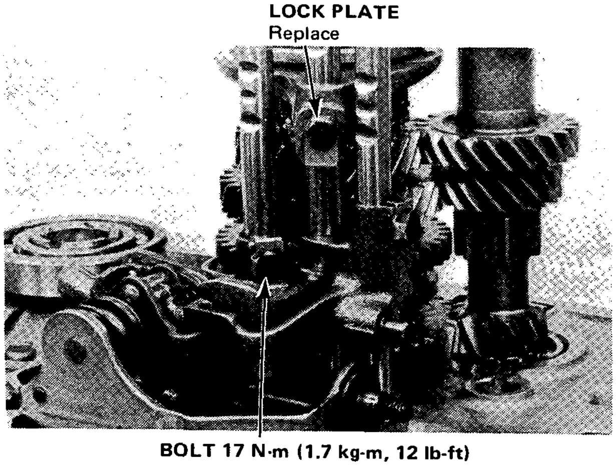

SHIFT ARM HOLDER
REVERSE SHIFT FORK
CLUTCH HOUSING
DETENT BALL

NOTE: Make sure that reverse shift fork is aligned with detent ball.

14. Install the reverse idler gear and shaft.

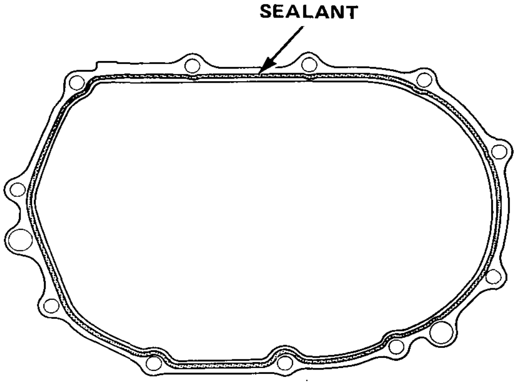

REVERSE IDLER GEAR SHAFT
REVERSE IDLER GEAR

15. Install the three special bolts and lock plates on shift shafts then bend tab on each lock plate against bolt head.


LOCK PLATE
Replace
BOLT 17 N·m (1.7 kg-m, 12 lb-ft)

NOTE: To ease reassembly, lightly oil the shift shafts, transmission shafts, and differential bearings.

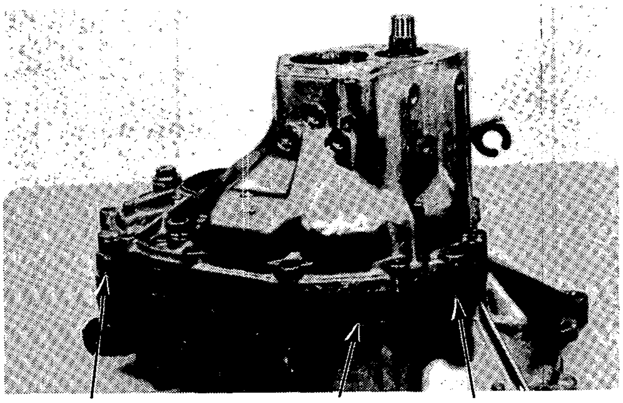
16. Apply liquid gasket to the clutch housing as shown below.



NOTE: This transmission uses no gasket between the major housings; use Honda P/N 08740-99986 sealant. Assemble the housings within 20 minutes after applying the sealant and allow it to cure at least 30 minutes after assembly before filling it with oil.

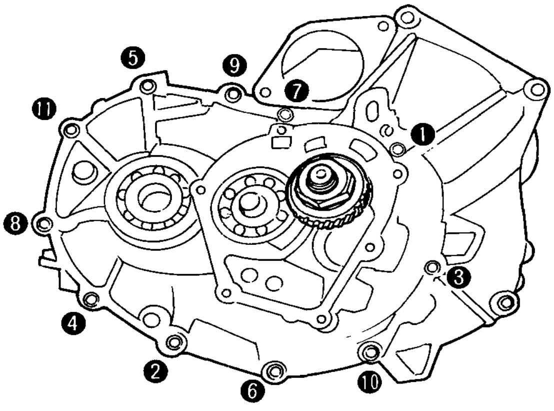
(cont'd)

17. Install the dowel pins on the clutch housing.
18. Install the transmission housing being careful to line up shafts. Expand countershaft bearing snap ring so that transmission housing can fall into place.

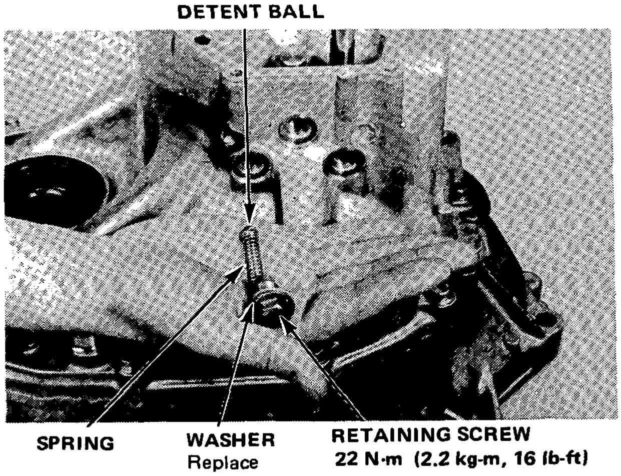

DOWEL PIN
SEALANT
DOWEL PIN

CAUTION: Do not force installation – check for and correct any misalignment.

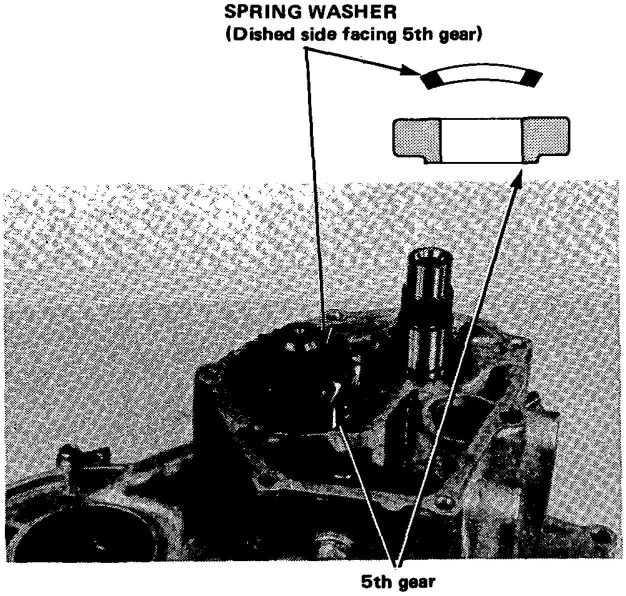
19. Torque bolts (8 × 1.25 mm) in sequence shown, 27 N·m (2.7 kg-m, 20 lb.ft).


⑤
⑨
⑦
⑪
①
⑧
③
④
②
⑥
⑩

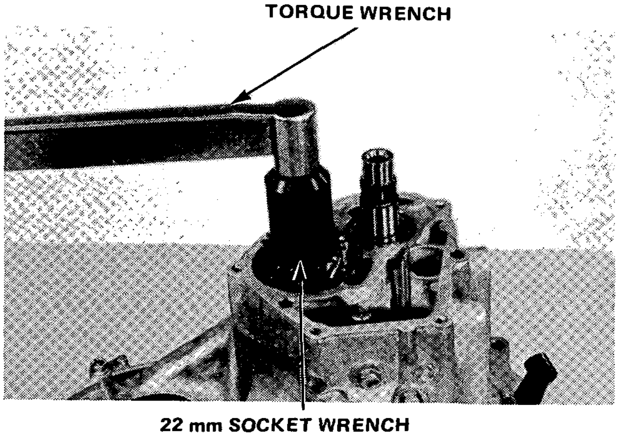
20. Install the three detent balls, washers, springs, and retaining screws.


DETENT BALL
SPRING
WASHER
Replace
RETAINING SCREW
22 N·m (2.2 kg-m, 16 lb-ft)

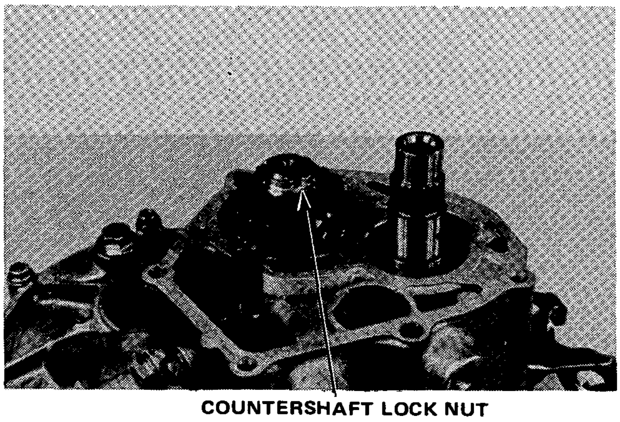
21. Install the counter 5th gear and spring washer.


SPRING WASHER
(Dished side facing 5th gear)
5th gear

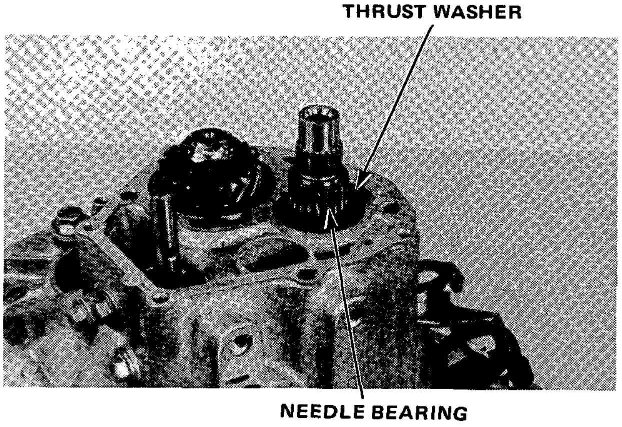
22. Install the mainshaft holder, then shift transmission into reverse.
Torque countershaft lock nut to 120 N·m (12 kg-m, 86 lb-ft), loosen, and retighten to same torque.


TORQUE WRENCH
22 mm SOCKET WRENCH

23. Stake shoulder on lock nut in to slot in countershaft.


COUNTERSHAFT LOCK NUT

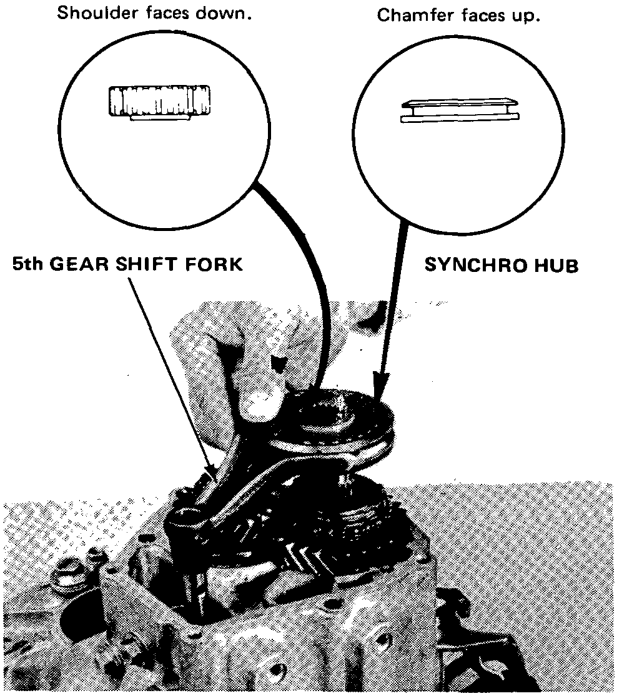
24. Install the needle bearing and thrust washer.


THRUST WASHER
NEEDLE BEARING

25. Install the mainshaft 5th gear synchro ring and the synchro spring.

26. Install the synchro hub and the synchro sleeve onto the shift fork. Install them onto the mainshaft.

NOTE: Install the synchro hub with its raised inner shoulder facing down.

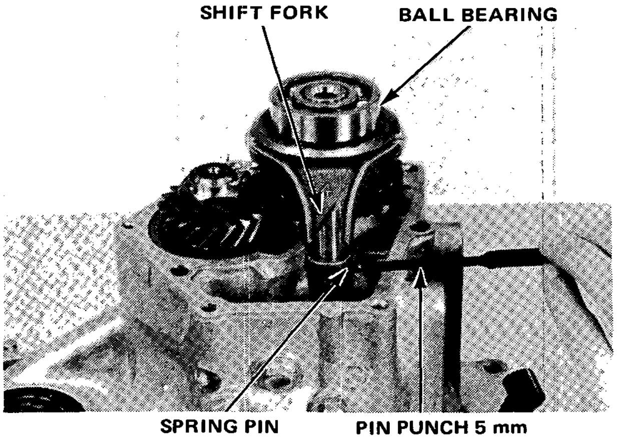

Shoulder faces down.
Chamfer faces up.
5th GEAR SHIFT FORK
SYNCHRO HUB

(cont'd)

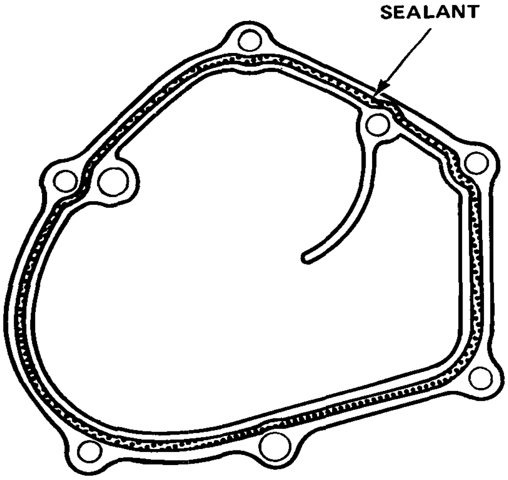
Transmission Reassembly (cont'd)

27. Install the bearing.

28. Drive the spring pin into the shift fork.

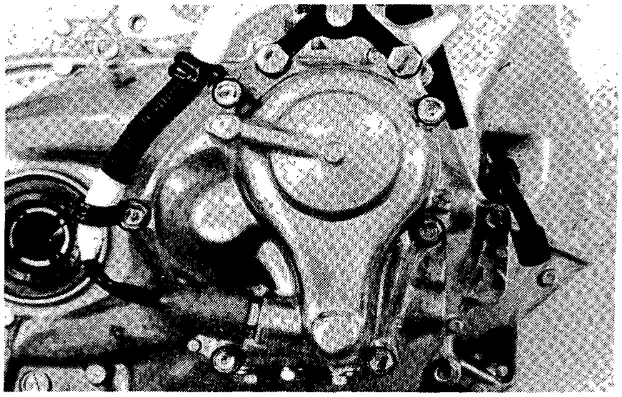


29. Apply sealant on the sealing surface of the transmission housing as shown.



NOTE: This transmission uses no gaskets between the major housings; use Honda sealant, P/N 08740-99986. Assemble the housings within 20 minutes after applying the sealant and allow it to cure for at least 30 minutes after assembly before filling it with oil.

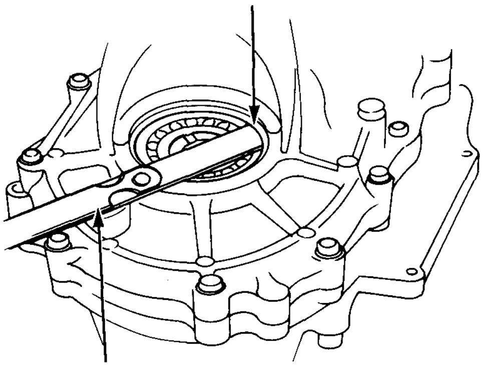
30. Install the 5th gear housing, and torque its bolts to 12 N·m (1.2 kg-m, 9 lb-ft).



Differential Seal Installation

1. Measure the clearance between the snap ring and the bearing outer race.

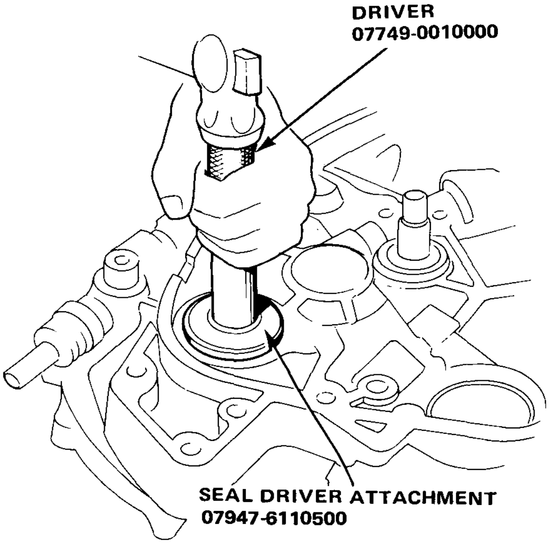
   SIDE CLEARANCE; 0–0.15 mm
   (0–0.006 in.)


SNAP RING
FEELER GAUGE

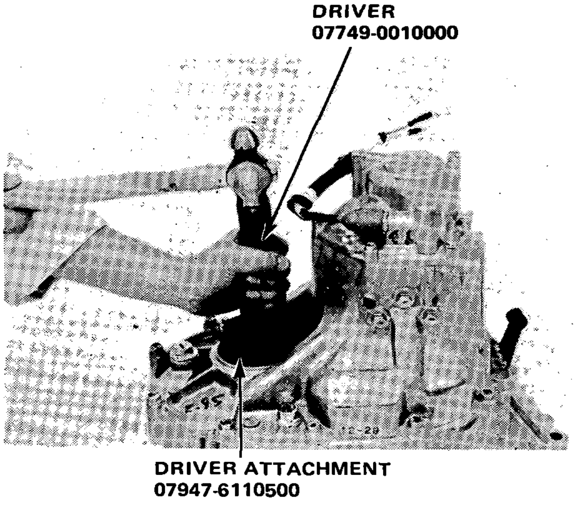
Select a snap ring of the correct thickness from the table below if the clearance is out of tolerance.

PART NUMBER	THICKNESS
90414-634-000	2.45 mm (0.096 in.)
90415-634-000	2.55 mm (0.100 in.)
90416-634-000	2.65 mm (0.104 in.)
90417-634-000	2.75 mm (0.108 in.)
90418-634-000	2.85 mm (0.112 in.)
90419-634-000	2.95 mm (0.116 in.)

2. Apply grease to the seal, and then drive it into the clutch housing with the special tools.


DRIVER
07749-0010000
SEAL DRIVER ATTACHMENT
07947-6110500

3. Apply grease to the seal, and then drive it into the transmission housing with the special tools.


DRIVER
07749-0010000
DRIVER ATTACHMENT
07947-6110500

Installation

1. Place the transmission on transmission jack.

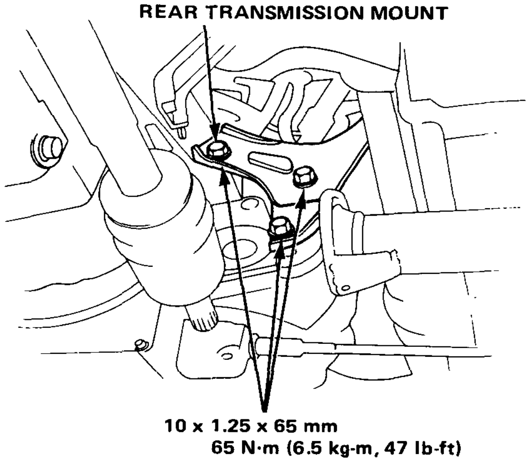
   NOTE: Clean and grease release bearing sliding surfaces.

2. Check that two 14 mm dowel pins are installed in the clutch housing.
3. Raise the transmission far enough to align dowel pins with matching holes in block.
4. Roll the transmission toward engine and fit mainshaft into clutch disc splines. If driver's side suspension was left in place, install new spring clips on both axles, then carefully insert left axle into differential as you install transmission.

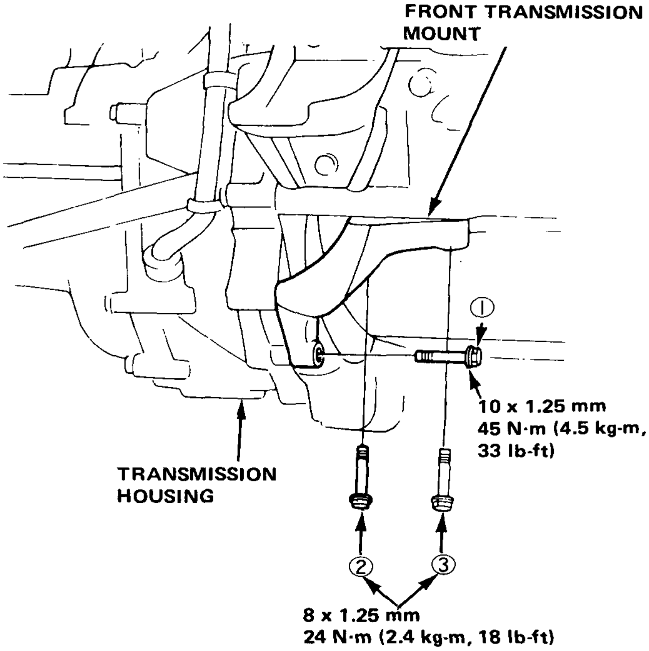
   NOTE: New 26 mm spring clips must be used on both axles.

   CAUTION: Make sure that axles fully bottom. Slide axle in until you feel spring clips engage differential.

5. Push and wiggle the transmission until it fits flush with engine flange.
6. Secure transmission to engine with mounting bolts from the engine side (12 x 1.25 x 70 mm). Torque to 68 N·m (6.8 kg-m, 50 lb-ft).
7. Install the rear transmission mount on the transmission housing. Torque its bolts to 65 N·m (6.5 kg-m, 47 lb-ft).



8. Install the engine torque bracket on the transmission housing. Torque its bolts to 45 N·m (4.5 kg-m, 33 lb-ft).
9. Loosely install the bolts for the front transmission mount, then torque them torque to in the sequence shown.



10. Turn right steering knuckle/axle assembly outward far enough to insert free end of axle into transmission. Repeat on opposite side.

    CAUTION: Make sure that axles fully bottom. Slide axle in until you feel spring clips engage differential.

11. Reconnect the shift rod and shift lever torque rod.
12. Reconnect the lower arm ball joints and torque to 45 N·m (4.5 kg-m, 33 lb-ft).
13. Reconnect the tie-rod end ball joints and torque to 45 N·m (4.5 kg-m, 33 lb-ft).
14. Install the engine and wheel well splash shields.
15. Reconnect the exhaust header pipe.
16. Install the front wheels, lower car to ground, and torque lug nuts to 110 N·m (11 kg-m, 80 lb-ft).

17. Remove chain hoist from the 8 mm bolt on the cylinder head.

18. Install the speedometer cable into the gear holder, then secure cable with clip and install boot.

19. Install the top transmission mounting bolts and torque to 45 N·m (4.5 kg-m, 33 lb-ft).

20. Connect the clutch cable to release arm, then attach cable housing end to transmission bracket.

21. Connect the engine compartment wiring:

    - Battery positive cable to starter.
    - Black/white wire to starter solenoid.
    - Green/black and yellow wires to back-up light switch.
    - Transmission ground cable.

22. With ignition key OFF, connect ground cable to battery and transmission.

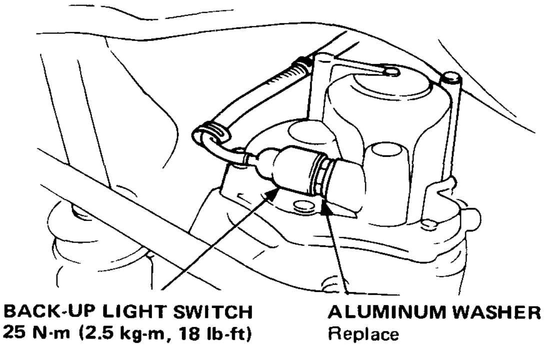
23. Refill the transmission and adjust clutch free play. (Page 13-2)

24. Check the transmission for smooth operation.

5-Speed Transmission

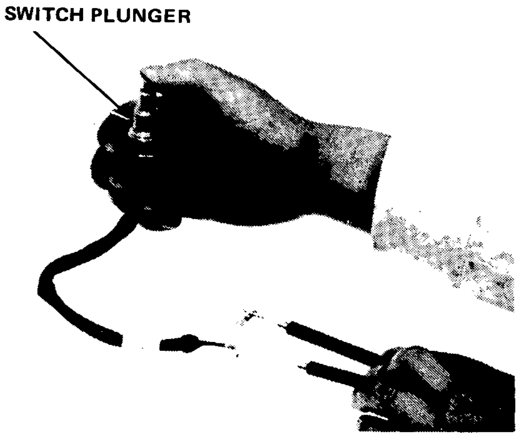
Back-up Light Switch Testing

1. Test the back-up light switch by placing the gear shift lever in reverse and turning the ignition switch to ON.

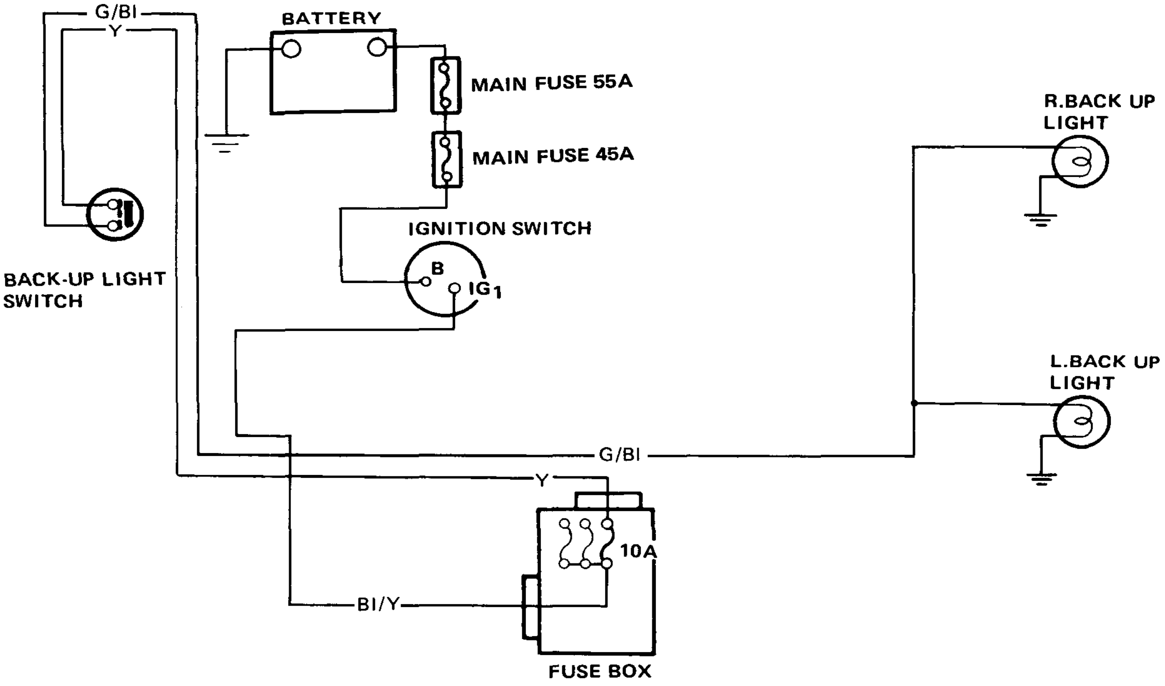

BACK-UP LIGHT SWITCH
25 N·m (2.5 kg-m, 18 lb-ft)
ALUMINUM WASHER
Replace

2. If back-up lights do not go on, remove the back-up light switch.

3. Using an ohmmeter, check the switch for continuity while pushing in on the switch plunger.

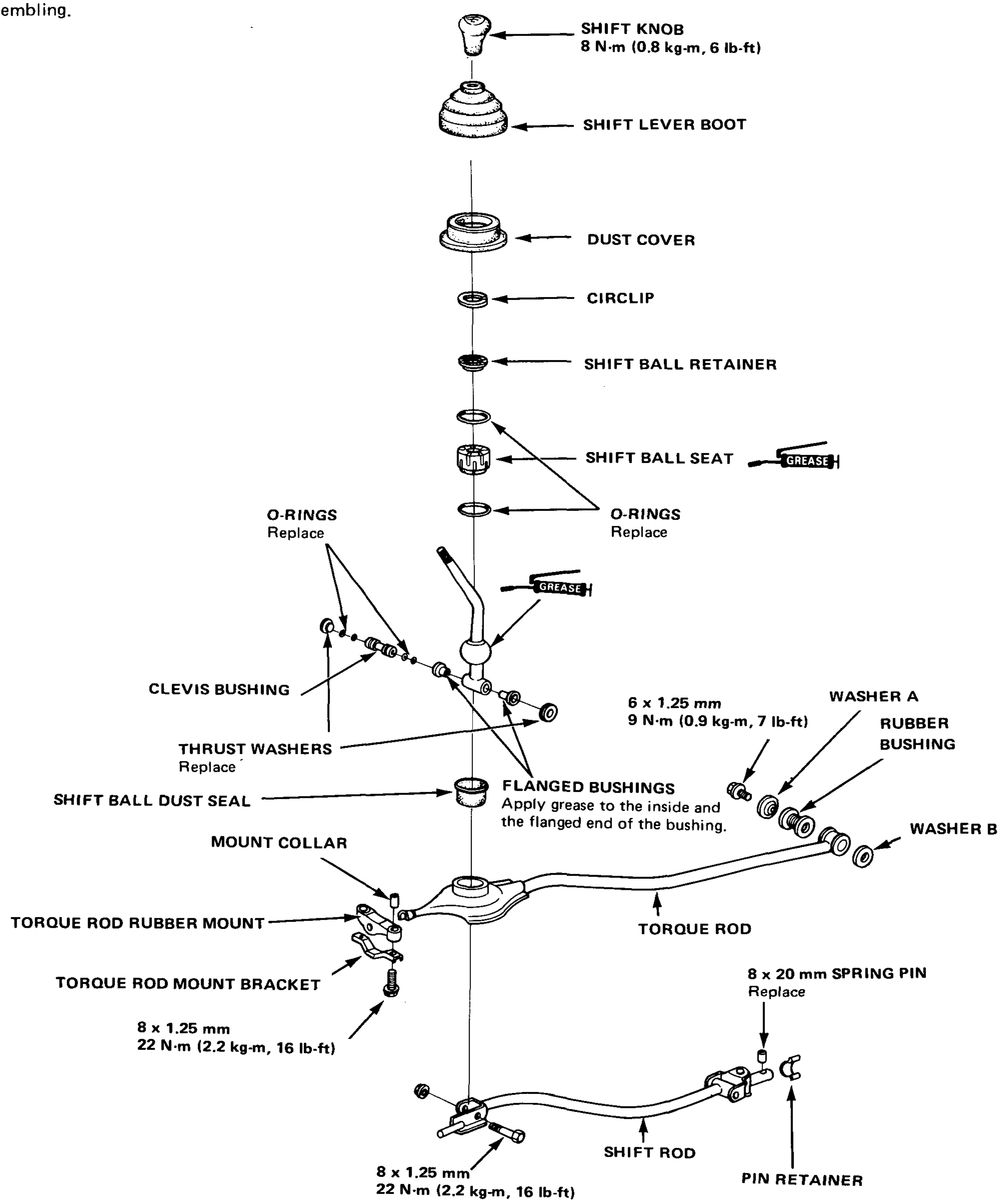

SWITCH PLUNGER

Back-up Light Switch Circuit


G/Bl
Y
BATTERY
MAIN FUSE 55A
MAIN FUSE 45A
R.BACK UP LIGHT
IGNITION SWITCH
B
IG1
BACK-UP LIGHT SWITCH
L.BACK UP LIGHT
G/Bl
Y
10A
Bl/Y
FUSE BOX

Gearshift Mechanism Overhaul

NOTE: Inspect rubber parts for wear or damage when disassembling.


SHIFT KNOB
8 N·m (0.8 kg-m, 6 lb-ft)
SHIFT LEVER BOOT
DUST COVER
CIRCLIP
SHIFT BALL RETAINER
SHIFT BALL SEAT
GREASE
O-RINGS
Replace
O-RINGS
Replace
GREASE
CLEVIS BUSHING
THRUST WASHERS
Replace
6 x 1.25 mm
9 N·m (0.9 kg-m, 7 lb-ft)
WASHER A
RUBBER BUSHING
SHIFT BALL DUST SEAL
FLANGED BUSHINGS
Apply grease to the inside and the flanged end of the bushing.
WASHER B
MOUNT COLLAR
TORQUE ROD RUBBER MOUNT
TORQUE ROD
TORQUE ROD MOUNT BRACKET
8 x 20 mm SPRING PIN
Replace
8 x 1.25 mm
22 N·m (2.2 kg-m, 16 lb-ft)
SHIFT ROD
PIN RETAINER
8 x 1.25 mm
22 N·m (2.2 kg-m, 16 lb-ft)

4-Speed Transmission

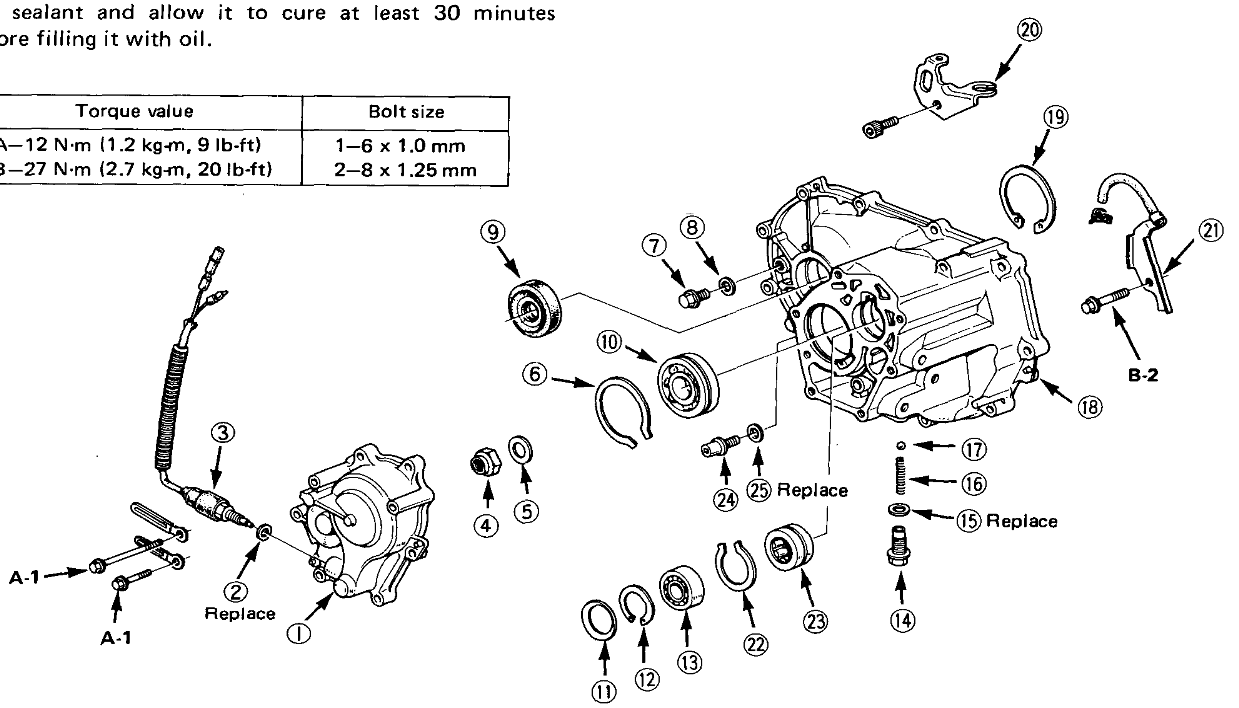
Index

Clean all parts thoroughly in solvent and dry with compressed air.

Lubricate all parts with oil before reassembly.

NOTE: This transmission uses no gaskets between the major housings; use Honda P/N 08740-99986 sealant. Assemble the housings within 20 minutes after applying the sealant and allow it to cure at least 30 minutes before filling it with oil.

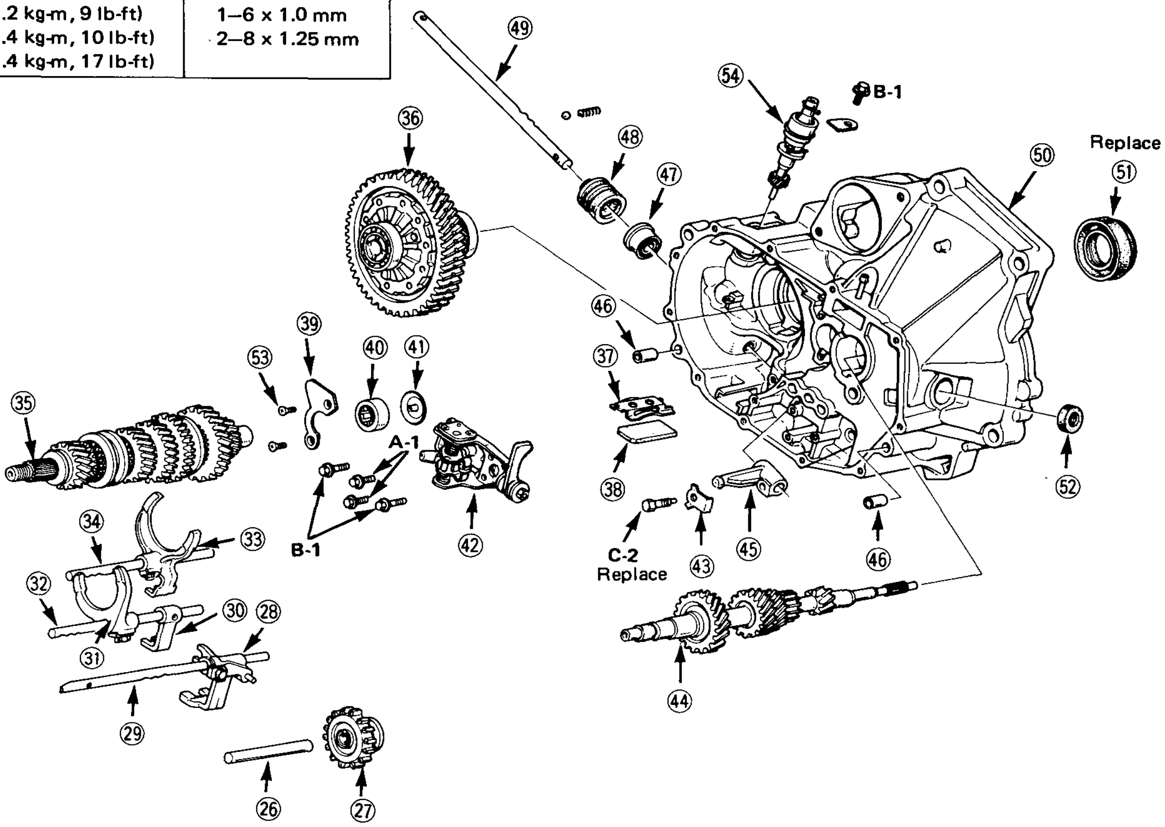
Torque value	Bolt size
A—12 N·m (1.2 kg-m, 9 lb-ft)	1—6 x 1.0 mm
B—27 N·m (2.7 kg-m, 20 lb-ft)	2—8 x 1.25 mm



① **END COVER**
Removal, page 14-7
② **14 mm WASHER**
③ **BACK-UP LIGHT SWITCH**
Inspection, page 14-38
④ **COUNTERSHAFT LOCKNUT**
⑤ **SPRING WASHER**
⑥ **SNAP RING 65 mm**
⑦ **OIL FILLER BOLT**
⑧ **WASHER**
⑨ **SEAL**
Removal, page 14-19
Installation, page 14-35
⑩ **BALL BEARING**
⑪ **SPRING WASHER 52 mm**
⑫ **SNAP RING**
Removal, page 14-7
Installation, page 14-7
⑬ **BALL BEARING**
⑭ **DETENT BALL RETAINER SCREW**
⑮ **WASHER**
⑯ **DETENT SPRING**
⑰ **DETENT BALL**
⑱ **TRANSMISSION HOUSING**
⑲ **SNAP RING 72 mm**
⑳ **CLUTCH CABLE BRACKET**
㉑ **BREATHER TUBE ASSEMBLY**
㉒ **SNAP RING 45 mm**
㉓ **NEEDLE BEARING**
㉔ **OIL DRAIN PLUG**
㉕ **WASHER**

NOTE: Always clean the magnet ㊳ whenever the transmission housing is disassembled.

Torque value	Bolt size
A—12 N·m (1.2 kg-m, 9 lb-ft)	1—6 x 1.0 mm
B—14 N·m (1.4 kg-m, 10 lb-ft)	2—8 x 1.25 mm
C—24 N·m (2.4 kg-m, 17 lb-ft)	

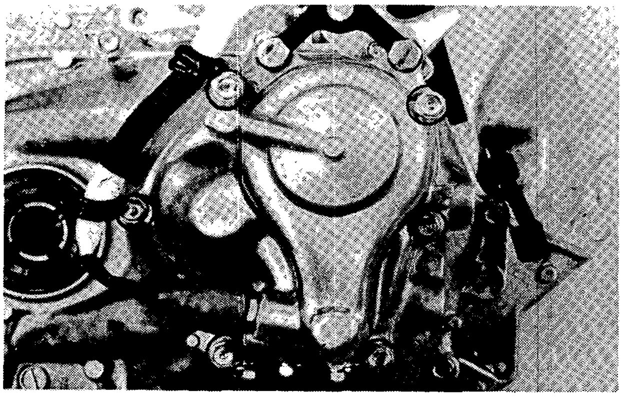


㉖ **REVERSE IDLER GEAR SHAFT**
㉗ **REVERSE IDLER GEAR**
Removal, page 14-10
Installation, page 14-31
㉘ **REVERSE SHIFT GUIDE**
㉙ **REVERSE SHIFT SHAFT**
㉚ **3rd SHIFT SHAFT GUIDE**
㉛ **3rd/4th GEAR SHIFT FORK**
㉜ **3rd/4th GEAR FORK SHAFT**
㉝ **1st/2nd GEAR SHIFT FORK**
㉞ **1st/2nd GEAR FORK SHAFT**
㉟ **COUNTERSHAFT ASSEMBLY**
Measurement, page 15-8
㊱ **DIFFERENTIAL**
Removal, page 14-19
Disassembly, Section 17
㊲ **HOLD-DOWN PLATE**
㊳ **MAGNET**
㊴ **BEARING RETAINER PLATE**
㊵ **NEEDLE BEARING**
㊶ **OIL BARRIER PLATE**
㊷ **SHIFT ARM HOLDER**
㊸ **LOCK PLATE**
㊹ **MAINSHAFT**
㊺ **GEAR SHIFT ARM**
㊻ **DOWEL PIN**
㊼ **SEAL**
㊽ **BOOT**
㊾ **GEAR SHIFT ROD**
㊿ **CLUTCH HOUSING**
(51) **SEAL**
(52) **DUST SEAL**
(53) **FLAT SCREW**
(54) **SPEEDOMETER DRIVEN GEAR**

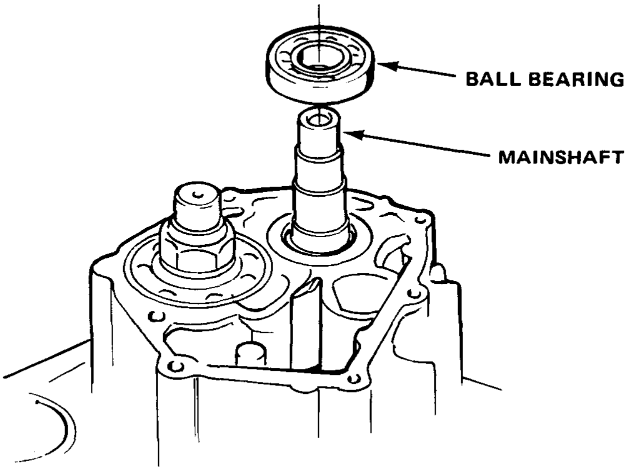
4-Speed Transmission

End Cover Snap Ring Inspection

1. Remove the bolts from the end cover, then remove it.

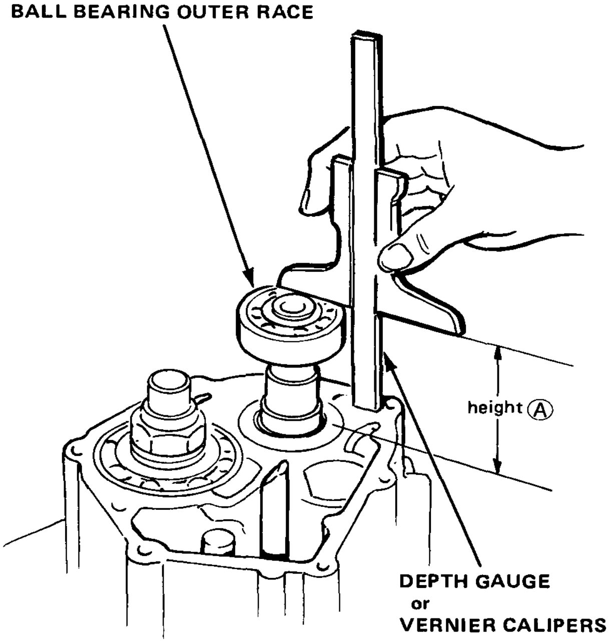


2. Remove the bearing and gears from the mainshaft.

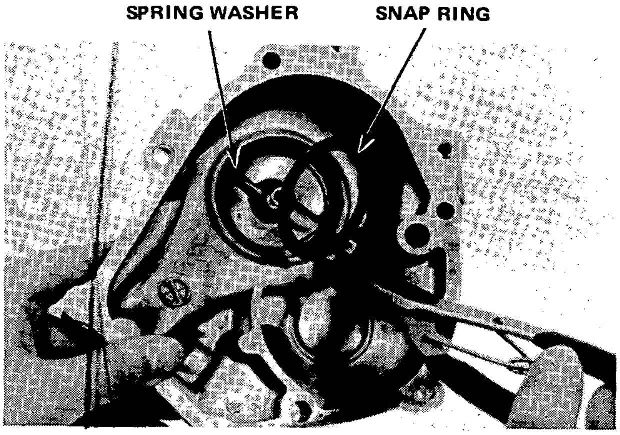

BALL BEARING
MAINSHAFT

3. Reinstall the ball bearing onto the mainshaft.

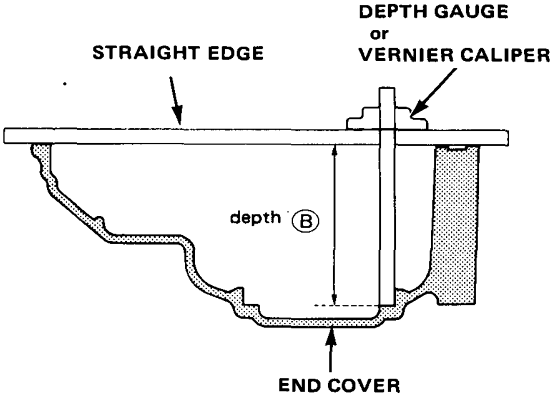
4. Clean all sealant residue from the transmission housing, then measure from the top of the ball bearing's outer race to the mounting flange for the end cover. Measure at two points and average the readings.


BALL BEARING OUTER RACE
height Ⓐ
DEPTH GAUGE
or
VERNIER CALIPERS

5. Remove the 52 mm spring washer and the snap ring from the end cover.


SPRING WASHER
SNAP RING

6. Place a straight edge on the end cover and measure the depth on the snap ring installation hole. Measure at two points and average the readings. Subtract the thickness of the straight edge from the reading.



7. Select the correct thickness snap ring as follows:
   (a) Subtract the bearing height (step 4) from the depth of the end cover (step 6).
   (b) Subtract the spring washer free height (0.85 mm/0.033 in.) from the dimension determined in step 7a.

EXAMPLE:

Housing depth:	**58.05 mm (2.285 in.)**
Bearing height:	**−56.05 mm (2.207 in.)**
Spring washer height:	**− 0.85 mm (0.033 in.)**
Correct snap ring thickness:	**1.15 mm (0.045 in.)**

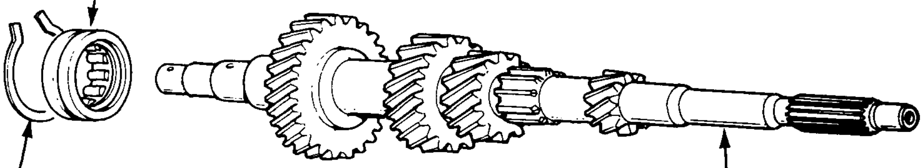
Parts Number	Thickness
23931-PE6-0000	0.5 mm (0.020 in.)
23932-PE6-0000	1.1 mm (0.043 in.)
23933-PE6-0000	1.15 mm (0.045 in.)
23934-PE6-0000	1.20 mm (0.047 in.)
23935-PE6-0000	1.25 mm (0.049 in.)
23936-PE6-0000	1.30 mm (0.051 in.)
23937-PE6-0000	1.35 mm (0.053 in.)
23938-PE6-0000	1.40 mm (0.055 in.)
23939-PE6-0000	1.45 mm (0.057 in.)
23940-PE6-0000	1.50 mm (0.059 in.)
23941-PE6-0000	1.55 mm (0.061 in.)

Mainshaft Index

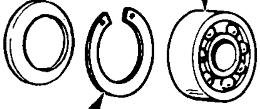
NOTE:

- Clean all parts thoroughly in solvent and dry with compressed air.

Lubricate all parts with oil before assembly.


NEEDLE BEARING
SNAP RING
MAINSHAFT

Inspect for wear or damage.

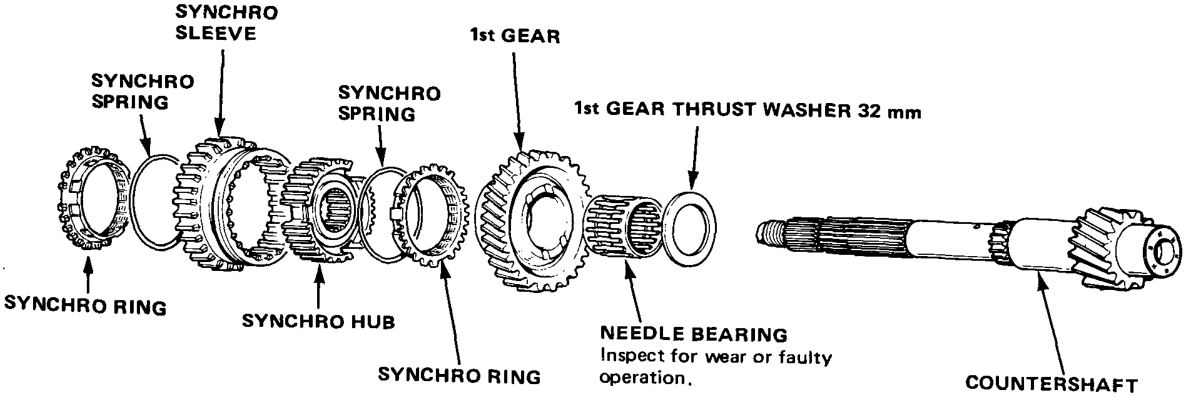

BALL BEARING
26 mm SPRING WASHER
SNAP RING

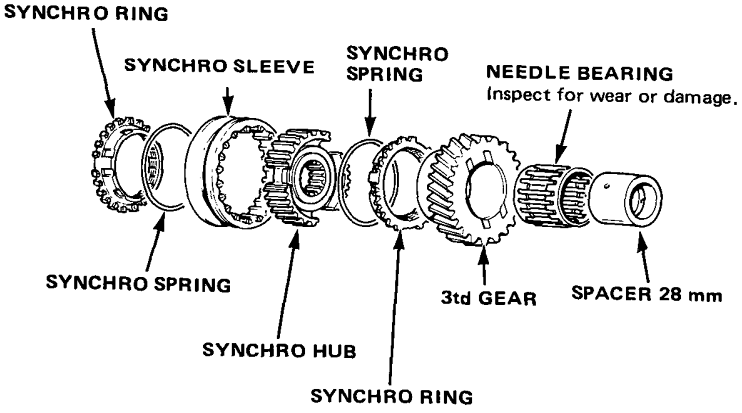
Countershaft Index

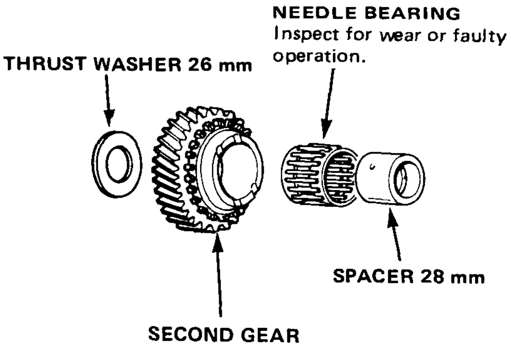
NOTE:

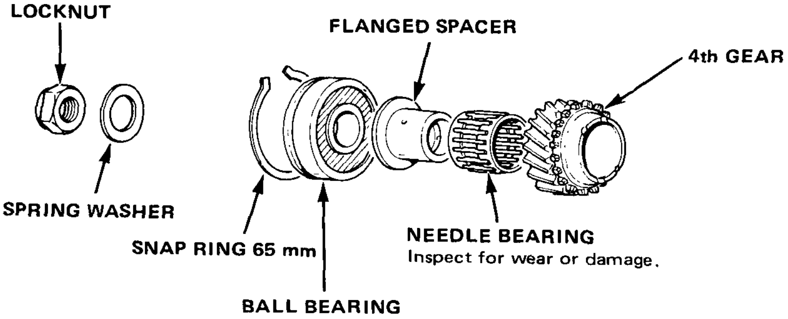
- Clean all parts thoroughly in solvent and dry with compressed air.
- The 28 mm spacers should be marked as they are removed, so that can be reinstalled correctly.

Lubricate all parts with oil before reassembly.


SYNCHRO SLEEVE
1st GEAR
SYNCHRO SPRING
SYNCHRO SPRING
1st GEAR THRUST WASHER 32 mm
SYNCHRO RING
SYNCHRO HUB
NEEDLE BEARING
Inspect for wear or faulty operation.
SYNCHRO RING
COUNTERSHAFT


SYNCHRO RING
SYNCHRO SLEEVE
SYNCHRO SPRING
NEEDLE BEARING
Inspect for wear or damage.
SYNCHRO SPRING
3td GEAR
SPACER 28 mm
SYNCHRO HUB
SYNCHRO RING


NEEDLE BEARING
Inspect for wear or faulty operation.
THRUST WASHER 26 mm
SPACER 28 mm
SECOND GEAR


LOCKNUT
FLANGED SPACER
4th GEAR
SPRING WASHER
SNAP RING 65 mm
NEEDLE BEARING
Inspect for wear or damage.
BALL BEARING

Countershaft Clearance Measurement

NOTE: On adjusting the countershaft clearance, select the correct spacer 28 mm, flanged spacer, and 1st gear thrust washer from the tables below.

1. Assemble the mainshaft and countershaft as shown below.

THRUST WASHER THICKNESS

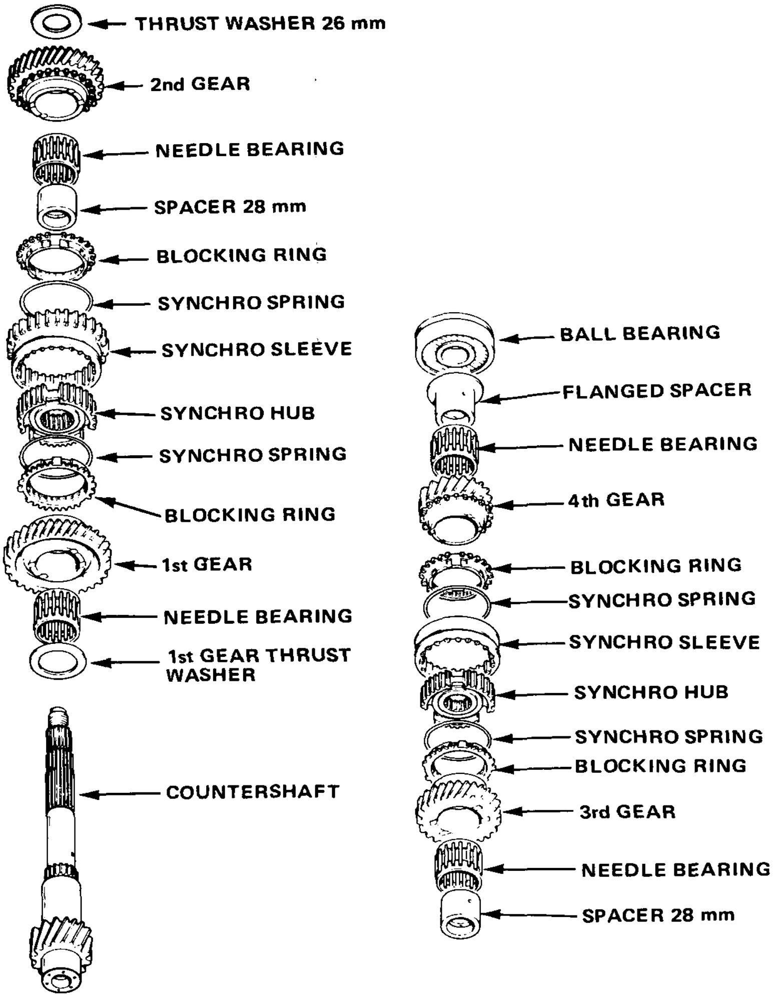
CLASS	THICKNESS
A	1.95–1.98 mm (0.077–0.078 in)
B	1.92–1.95 mm (0.076–0.077 in)
C	1.89–1.92 mm (0.074–0.076 in)

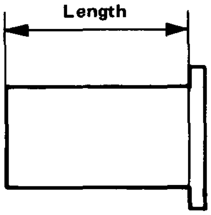
SPACER 28 mm

LENGTH
28.01–28.04 mm (1.103–1.104 in)
28.04–28.07 mm (1.104–1.105 in)
28.07–28.10 mm (1.105–1.106 in)
28.10–28.13 mm (1.106–1.107 in)

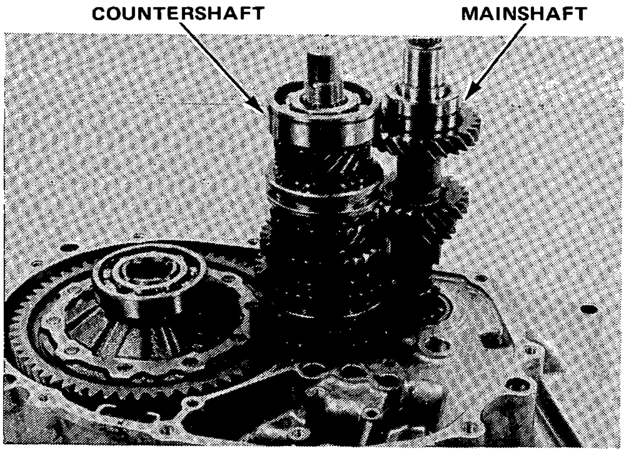
FLANGED SPACER

LENGTH
28.01–28.04 mm (1.103–1.104 in)
28.04–28.07 mm (1.104–1.105 in)
28.07–28.10 mm (1.105–1.106 in)
28.10–28.13 mm (1.106–1.107 in)


THRUST WASHER 26 mm
2nd GEAR
NEEDLE BEARING
SPACER 28 mm
BLOCKING RING
SYNCHRO SPRING
SYNCHRO SLEEVE
SYNCHRO HUB
SYNCHRO SPRING
BLOCKING RING
1st GEAR
NEEDLE BEARING
1st GEAR THRUST WASHER
COUNTERSHAFT
BALL BEARING
FLANGED SPACER
NEEDLE BEARING
4th GEAR
BLOCKING RING
SYNCHRO SPRING
SYNCHRO SLEEVE
SYNCHRO HUB
SYNCHRO SPRING
BLOCKING RING
3rd GEAR
NEEDLE BEARING
SPACER 28 mm

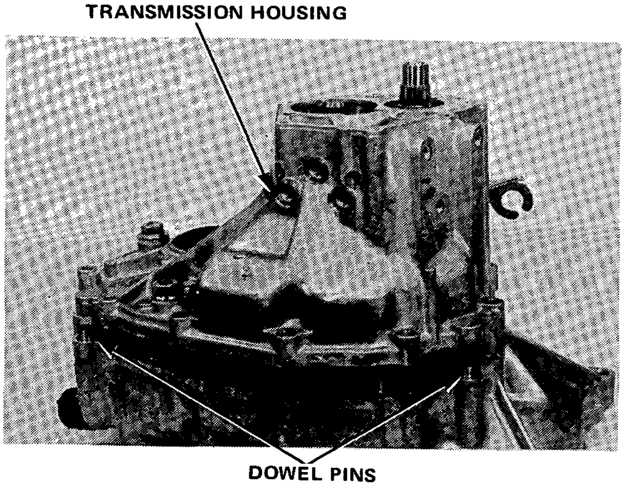


2. Install the mainshaft and countershaft as an assembly.

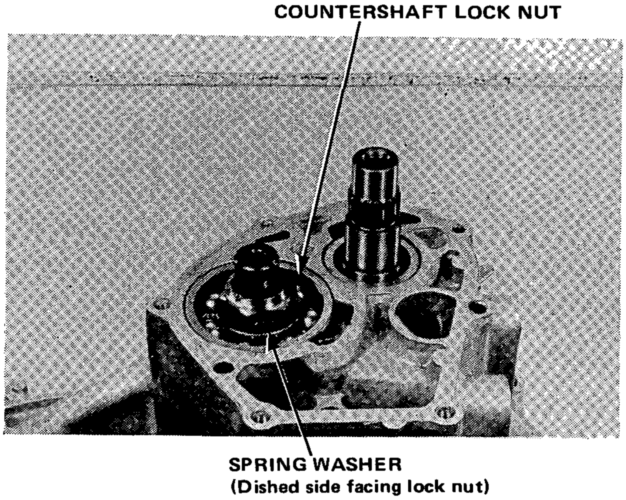

COUNTERSHAFT
MAINSHAFT

3. Lift the countershaft 2nd and reverse gear to shift in to 2nd gear.

4. Install the transmission housing and dowel pins as shown.

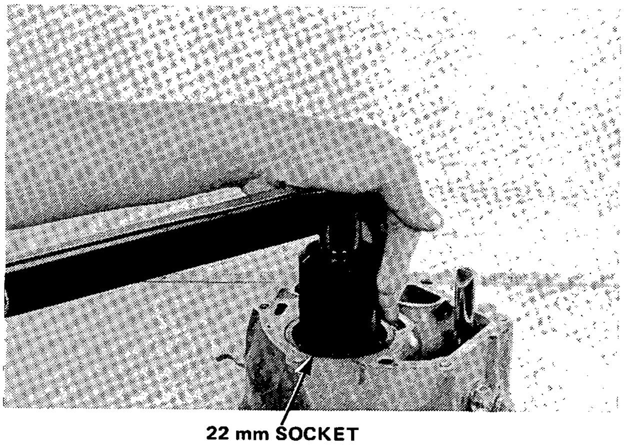

TRANSMISSION HOUSING
DOWEL PINS

5. Install the spring washer and countershaft lock nut on the countershaft.


COUNTERSHAFT LOCK NUT
SPRING WASHER
(Dished side facing lock nut)

6. Install the mainshaft holder. See page 14-8.

7. Install the countershaft lock nut and tighten to 90 N·m (9.0 kg-m, 65 lb-ft).


22 mm SOCKET

8. Remove the transmission housing by using housing puller. See page 14-8.

9. Remove the countershaft and mainshaft.

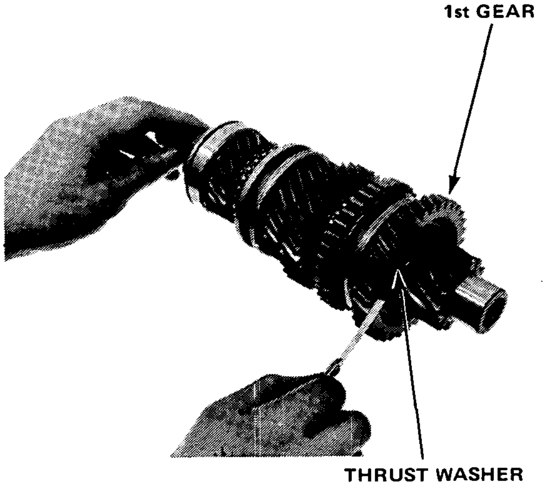
(cont'd)

Countershaft Assembly Clearance (cont'd)

- If any measurement is out of tolerance, the countershaft assembly must be disassembled and spacer collars or the thrust washer changed (see page 15-12).

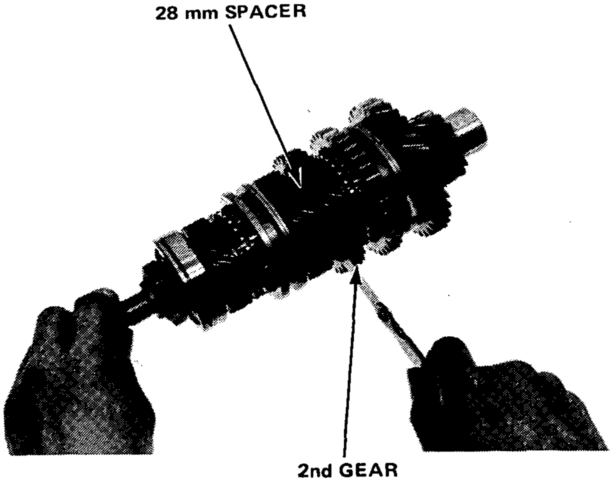
1. Measure clearance between the thrust washer and the 1st gear.

1st Gear Clearance
Standard (New): **0.03–0.08 mm (0.001–0.003 in.)**
Service Limit: **0.18 mm (0.007 in.)**


1st GEAR
THRUST WASHER

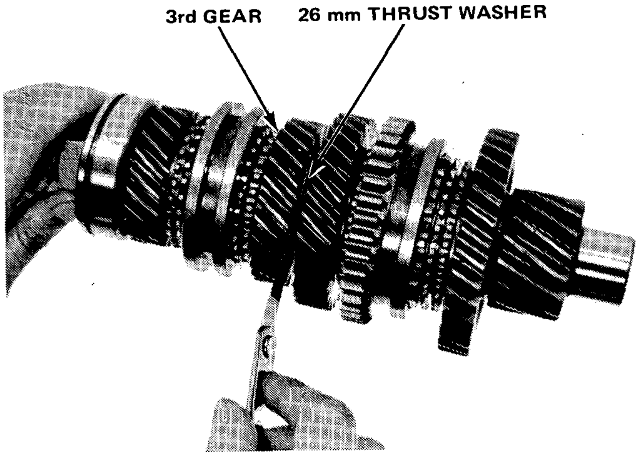
2. Measure clearance between the 28 mm spacer and 2nd gear.

2nd Gear Clearance:
Standard (New): **0.05–0.12 mm (0.002–0.005 in.)**
Service Limit: **0.18 mm (0.007 in.)**


28 mm SPACER
2nd GEAR

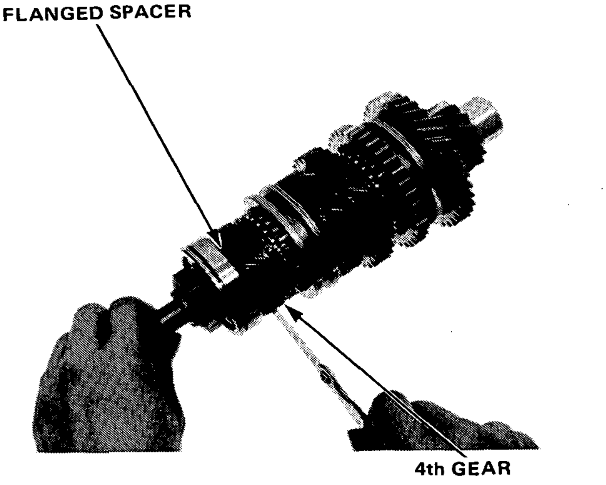
3. Measure the clearance between the 26 mm thrust washer and the 3rd gear.

3rd Gear
Standard: **0.05–0.12 mm (0.0020–0.0047 in.)**
Service Limit: **0.18 mm (0.0071 in.)**


3rd GEAR
26 mm THRUST WASHER

4. Measure clearance between 4th gear and the flanged spacer.

4th Gear
Standard: **0.05–0.12 mm (0.0020–0.0047 in.)**
Service Limit: **0.18 mm (0.0071 in.)**


FLANGED SPACER
4th GEAR

Stall Speed Test

1. Engage parking brake and block front wheels.
2. Connect tachometer, and start engine.
3. After engine has warmed up to normal operating temperature, shift into [☆].
4. Fully depress brake pedal and accelerator for 6 to 8 seconds, and note engine speed.
5. Allow 2 minutes for cooling, then repeat same test in [L] and [R].

Stall speed in [☆], [L], and [R] must be the same, and must also be within limits:

Stall Speed RPM:
Specification: 2700 rpm
Service Limit: 2300—2900 rpm

CAUTION: Do not test stall speed for more than 10 seconds at a time.

TROUBLE	PROBABLE CAUSE
Stall rpm high in [OD], [☆], [L], [R]	Low fluid level or oil pump output, clogged oil strainer, pressure regulator, slipping one-way clutch in torque convertor.
Stall rpm high in [OD], [R].	Slipping [OD] clutch.
Stall rpm high in [L].	Slipping [L] clutch.
Stall rmp high in [☆].	Slipping [☆] clutch.
Stall rpm low in [OD], [☆], [L], [R]	• Engine output low, throttle cable misadjusted at carburetor. • Oil pump seized, torque convertor thrust washer seized.

Maintenance

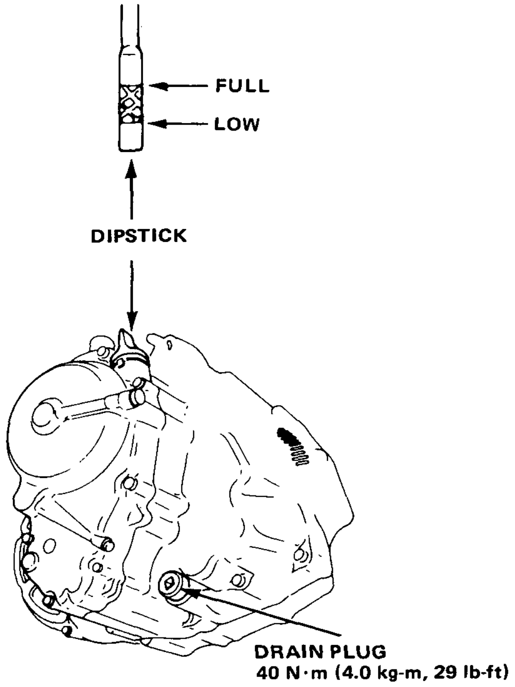
Checking

With car on level ground unscrew transmission dipstick and check level of fluid immediately after (within one minute) engine is shut off. Fluid level should be between full and low marks. If level is at, or below, low mark, add DEXRON-type automatic transmission fluid. Do not screw dipstick in to check fluid level.

Changing

1. Bring transmission up to operating temperature by driving car. Park car on level ground, turn engine off, then remove drain plug.
2. Reinstall drain plug with new washer, then refill transmission to the full mark on the dipstick.

Automatic transmission Capacity:
2.8ℓ (2.9 U.S. qts.) at change
5.4ℓ (5.6 U.S. qts.) at assembly

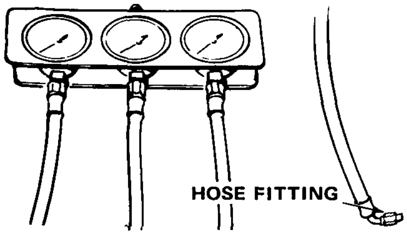


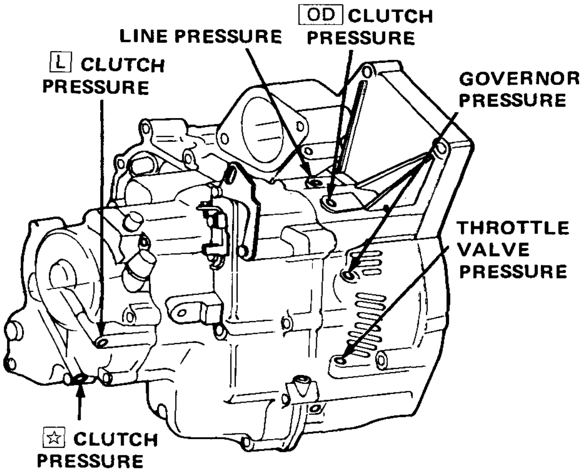
Pressure Test

NOTE:

- Stop engine when attaching hoses for pressure tests. Torque hose fittings to 18 N·m (1.8 kg-m, 12 lb-ft).
- Do not reuse aluminum washers.

GAUGE SET
07406–0020003 (includes pressure hose set 07406–0020201)





CAUTION: Before checking, be sure transmission is filled to proper level.

PRESSURE	SELECTOR POSITION	MEASUREMENT	SYMPTOM	PROBABLE CAUSE	FLUID PRESSURE	
					SPECIFICATION	SERVICE LIMIT
LINE	N or P	MEASUREMENTS • With parking brake applied, run engine at 2000 min^{-1} (rpm).	No (or low) LINE pressure	Torque converter, oil pump pressure regulator, torque converter check valve.	1500 736–785 kpa (7.5–8.0 kg/cm^2, (106.7–113.7 psi 1300/1200 637–687 kpa (6.5–7.0 kg/cm^2, 91.8–98.9 psi)	1500 687 kpa (7.0 kg/cm^2, 99.5 psi) 1300/1200 588 kpa (6.0 kg/cm^2, 85.2 psi)
L CLUTCH	L	MEASUREMENTS • With parking brake applied, raise front wheels off ground and support with safety stands. • Run engine at 2000 min^{-1}(rpm).	No (or low) L clutch pressure	L clutch	1500 687–785 kpa (7.0–8.0 kg/cm^2, 99.5–113.7 psi) 1300/1200 588-687 kpa (6.0–7.0 kg/cm^2, 85.2–99.5 psi)	1500 638 kpa (6.5 kg/cm^2, 92.4 psi) 1300/1200 539 kpa (5.5 kg/cm^2, 78.2 psi)
☆ CLUTCH	☆		No (or low) ☆ clutch pressure	☆ clutch		
OD	OD		No (or low) OD clutch pressure	OD clutch		
	R			Servo valve		
THROTTLE	☆ or OD	• With parking brake applied, run engine at 1000 min^{-1}(rpm). • Disconnect throttle cable at throttle lever. • Read pressure with lever released. • Manually push lever up simulating full throttle. • Read pressure with lever in full throttle position.	No (or low) THROTTLE pressure	Throttle valve Throttle modulator valve	With lever in full throttle position. 1500 736-785 kpa (7.5–8.0 kg/cm^2, 106.7–113.7 psi) 1300/1200 637–687 kpa (6.5–7.0 kg/cm^2, 91.8–98.9 psi)	1500 686 kpa (7.0 kg/cm^2, 100 psi) 1300/1200 588 kpa (6.0 kg/cm^2, 85.2 psi)
GOVERNOR	☆ or OD	• Place vehicle on chassis dynamometer, or jack up front of car, support with safety stands, block rear wheels, and set hand brake. • Run vehicle at 60 km/h (38 mph).	No (or low) Governor pressure	Governor valve	221–230 kpa (2.25–2.35 kg/cm^2, 31.9–33.3 psi)	98.0 kpa (2.2 kg/cm^2, 31.2 psi)

Hondamatic

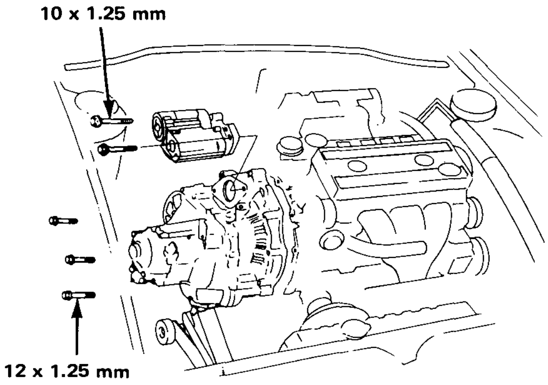
Troubleshooting

PROBLEM	REFER TO:
Engine runs but car does not move	7, 9, 10, 11, 12, 13, 14, 25
Car does not move in L (OK in ☆ and OD)	1, 2, 3
Car does not move in ☆ (OK in L and OD)	3, 4, 13
Car does not move in R (OK in L , OD and ☆)	11, 13, 16
(Car does not move in OD (OK in ☆ and L)	5, 6, 13
Poor acceleration.	
— Stall rpm high in L and ☆ , OD	7, 9, 10, 13
— Stall rpm high in L	2, 13
— Stall rpm high in ☆	4, 13
— Stall rpm high in OD	5, 6, 13
— Stall rpm OK	8, 18
— Stall rpm low	18, 19, 21
Engine races in shift from L → ☆ (Shift point OK)	4, 24
Engine races in shift from ☆ → OD (Shift point OK)	6, 24
Car cleeps forward in N (Shift cable adjusted correctly)	2, 4, 6, 8, 22, 23, 24
Lock-up clutch does not engage.	
— In ☆ and OD	15, 17, 26, 27, 28, 29
— Only in ☆ (engages in OD)	26
— Only in OD (engages in ☆)	26
Lock-up clutch does not disengage.	
— In L	26, 27
Harshness in lock-up mode.	
— When accelerator pedal is returned	15, 20, 28
— When lock-up clutch is on	30
Vibration in lock-up mode	
— Vibration disappears when lock-up clutch is off	15, 17, 20, 30
Lock-up point to high in cruise: (Check if lock-up speed is normal by gradually accelerating on flat surface)	15, 20
Lock-up clutch does not disengage.	
— When accelerator pedal is returned (Disengaged in L).	15, 20

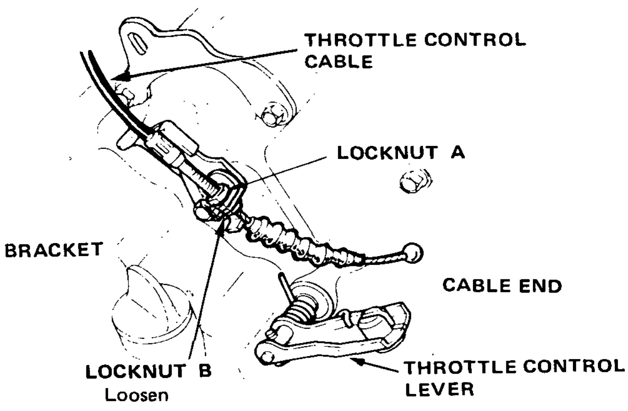
1. *Damaged low gear*
2. *Faulty low clutch*
    - a. *Stuck clutch piston*
    - b. *Damaged clutch O-ring*
    - c. *Damaged clutch feed pipe or O-ring*
    - d. *Foreign matter stuck in check valve*
    - e. *Worm or burnt clutch disc*
3. *Damaged 2nd gear*
4. *Faulty* ☆ *clutch*
    - a. *Stuck clutch piston*
    - b. *Damaged clutch O-ring*
    - c. *Damaged clutch feed pipe or O-ring*
    - d. *Foreign matter stuck in check valve*
    - e. *Worm or burnt clutch disc*
5. *Damaged 3rd gear*
6. *Deffective* OD *clutch*
    - a. *Stuck clutch piston*
    - b. *Damaged clutch O-ring*
    - c. *Foreign matter stuck in clutch check valve*
    - d. *Damaged clutch feed pipe or O-ring*
    - e. *Worn or burnt clutch disc*
7. *ATF level too low*
8. *ATF level too high*
9. *Faulty ATF pump*
10. *Stuck regulator valve or damage spring*
11. *Stuck servo shaft*
12. *Damaged mainshaft*
13. *Manual shift out of adjustment (broken cable, loose end pin)*
14. *Damaged final gear*
15. *Improperly adjusted throttle control cable at transmission*
16. *Damaged reverse gear*
17. *Faulty governor valve*
18. *Burnt or seized torque convertor one-way clutch*
19. *Improperly adjusted throttle cable at carburetor*
20. *Defective throttle valve*
21. *Lack of engine power*
22. *Burnt needle bearing*
23. *Burnt thrust washer*
24. *Improper clutch clearance*
25. *Broekn or warped drive plate, torque converter not fully seated*
26. *Foreign matter stuck in lock-up timing valve*
27. *Foreign matter stuck in lock-up shift valve*
28. *Foreign matter stuck in governor cut-off valve*
29. *Foreign matter stuck in torque converter check valve*
30. *Foreign matter stuck in lock-up control valve*

Removal

1. Disconnect the ground cable at battery and transmission.
2. Release the steering lock, and shift gear selector to N.
3. Disconnect the wiring:
   - Battery positive cable from starter.
   - Black/white wire from starter solenoid.
   - Transmission ground cable.
4. Disconnect the cooler hoses, and wire them up next to radiator so ATF won't drain out.
5. Remove the two starter mounting bolts, and top three transmission mounting bolts.



6. Loosen the front wheel nuts.
7. Apply the parking brake, block rear wheels, then raise the front end on jack stands and remove the front wheels.
8. Drain the transmission. Reinstall drain plug and washer.
9. Remove the throttle control cable.
   - Remove cable end.
   - Loosen lock nut B only.
   - Remove cable from bracket.



NOTE: For cable adjustment see page 16-60.

10. Remove the cable clip, then pull the speedometer cable out of holder.

    CAUTION: Do not remove holder because speedometer gear may fall into transmission housing.

11. Remove the engine and wheelwell splash shields from the front end of the frame. (see page 5-2)

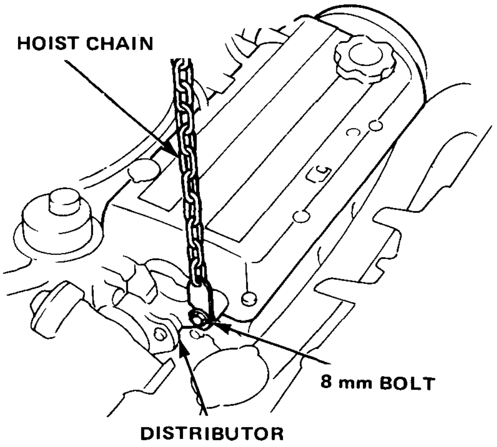
12. Remove the exhaust header pipe. (see page 5-2)

13. Disconnect the right and left lower arm ball joints and tir-rod end ball joints using the ball Joint Remover.

    CAUTION: Make sure the floor jack is positioned securely under the lower control arm, at the ball joint. Otherwise, torsion bar tension on the lower control arm may cause the arm to "jump" suddenly away from the steering knuckle as the ball joint is being removed.

14. Turn right the steering knuckle outward as far as it will go. With screwdriver against the inboard CV joint, pry right axle out of transmission housing approximately 1/2 inch (to force its spring clip out of groove inside differential gear splines), then pull it out the rest of the way. Repeat on opposite side, or, with driver's side connected, pry left axle out of transmission during Step 26.

15. Attach a chain hoist to the 8 mm bolt near the distributor, then lift the engine slightly to unload the mounts.

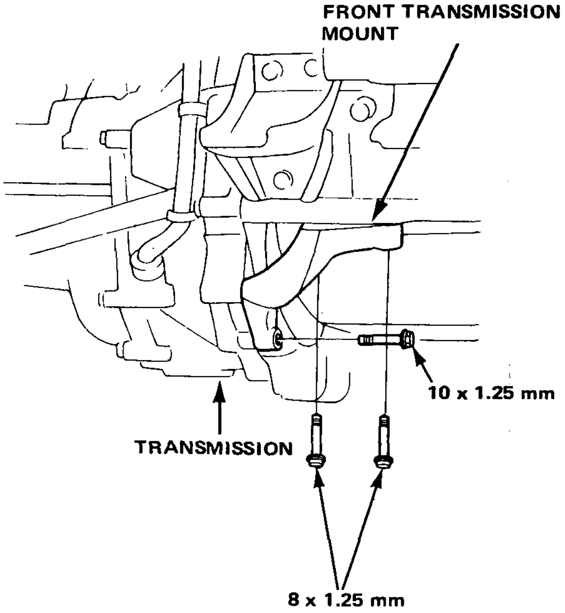


(cont'd)

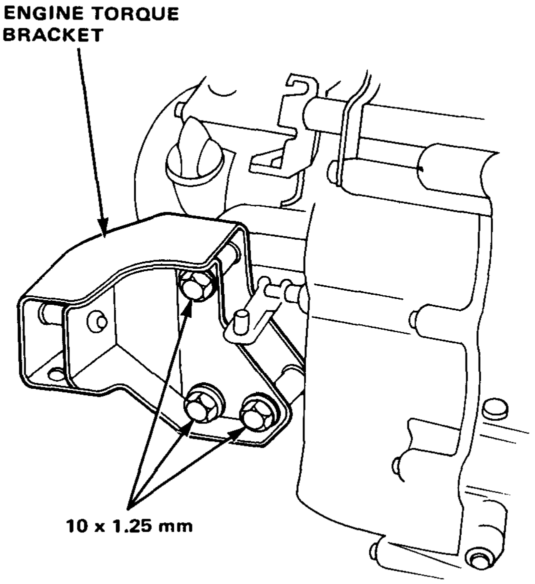
Removal(cont'd)

16. Raise transmission jack securely against transmission.

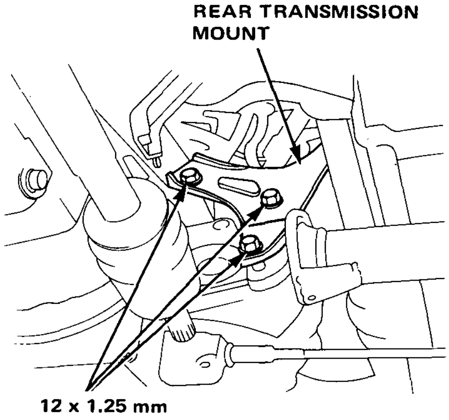
17. Remove the bolts from the front transmission mount.


FRONT TRANSMISSION MOUNT
10 x 1.25 mm
TRANSMISSION
8 x 1.25 mm

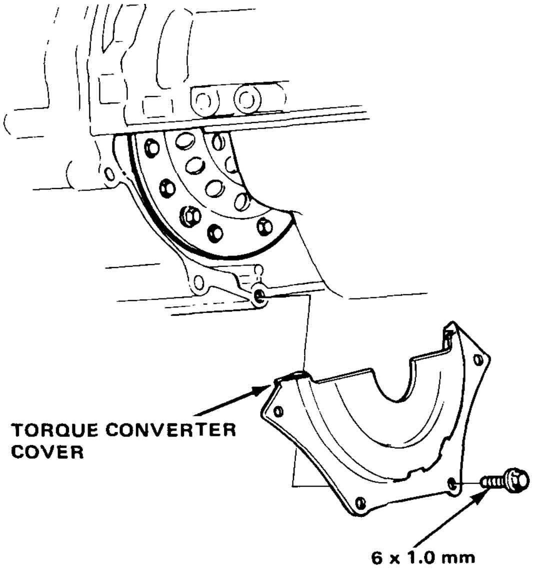
18. Remove the transmission housing bolts from the engine torque bracket.


ENGINE TORQUE BRACKET
10 x 1.25 mm

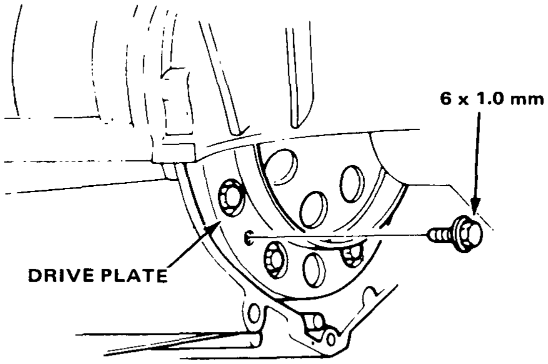
19. Remove the torque converter housing bolts from the rear transmission mount.


REAR TRANSMISSION MOUNT
12 x 1.25 mm

20. Remove the torque converter cover plate.



21. Remove the drive plate tightening bolts.



22. Remove the cotter pin from the shift cable control pin, then pull out the control pin.

23. Remove the cable holder and carefully remove the shift cable.

CAUTION: Be careful not to lose the shift cable bushing.

24. Remove the one remaining transmission mounting bolt from the engine side.

25. Pull transmission away from engine to clear the two 14 mm dowel pins, then lower the jack.

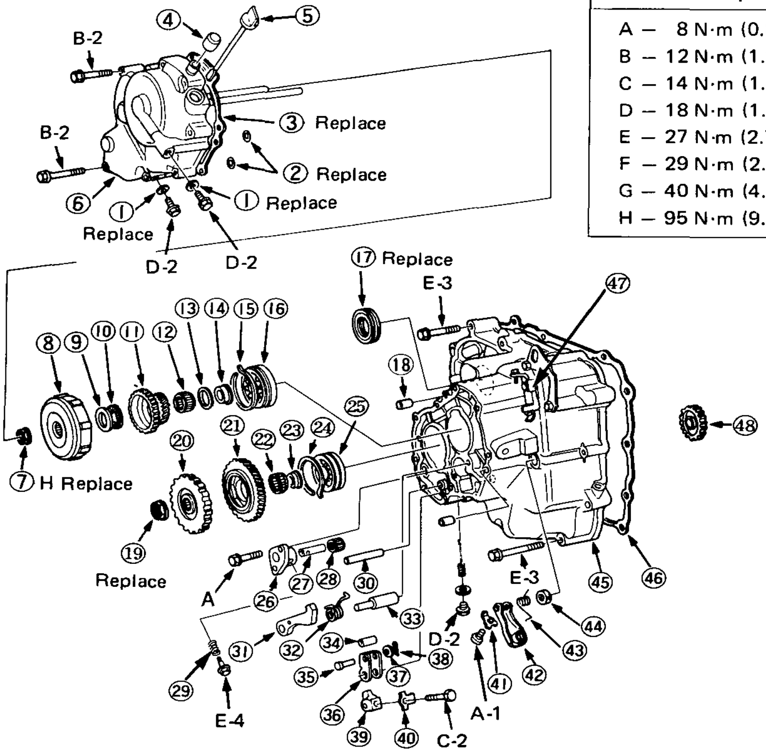
26. Remove torque converter from transmission.

Hondamatic

Index

NOTE:
- Clean all parts thoroughly in solvent and dry with compressed air.
- Check that the oil passages are not clogged.
- Lubricate all parts with ATF before reassembly.

Torque	Bolt size
A – 8 N·m (0.8 kg-m, 6 lb-ft)	1. 5 x 0.8 mm
B – 12 N·m (1.2 kg-m, 9 lb-ft)	2. 6 x 1.0 mm
C – 14 N·m (1.4 kg-m, 10 lb-ft)	3. 8 x 1.25 mm
D – 18 N·m (1.8 kg-m, 12 lb-ft)	4. 10 x 1.25 mm
E – 27 N·m (2.7 kg-m, 20 lb-ft)	
F – 29 N·m (2.9 kg-m, 21 lb-ft)	
G – 40 N·m (4.0 kg-m, 29 lb-ft)	
H – 95 N·m (9.5 kg-m, 70 lb-ft)	



① **WASHER 8 mm**
② **O-RING 7.7 x 1.9 mm**
③ **END COVER GASKET**
④ **BREATHER CAP**
⑤ **DIPSTICK**
⑥ **END COVER**
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Disassembly, page
⑦ **LOCKNUT 22 mm**
⑧ **LOW CLUTCH**
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Assembly, page 16-36
⑨ **THRUST WASHER 26 mm**
⑩ **THRUST NEEDLE BEARING 31 x 47 x 2 mm**
⑪ **1st GEAR**
⑫ **NEEDLE BEARING 31 x 36 x 18.5 mm**
⑬ **THRUST NEEDLE BEARING 31 x 47 x 2 mm**
⑭ **COLLAR 26 mm**
⑮ **SNAP RING 68 mm**
⑯ **MAINSHAFT BALL BEARING**
Replacement, page 16-42
⑰ **OIL SEAL**
Replacement, page 16-50
⑱ **DOWEL PIN 8 x 14 mm**
⑲ **LOCKNUT 30 mm**
⑳ **PARKING GEAR**
㉑ **COUNTERSHAFT 1st GEAR**
㉒ **NEEDLE BEARING 30 x 35 x 11 mm**
㉓ **1st GEAR COLLAR**
㉔ **SNAP RING 62 mm**
㉕ **COUNTERSHAFT BALL BEARING**
Replacement, page 16-41
㉖ **REVERSE IDLER SHAFT HOLDER**
㉗ **REVERSE IDLER SHAFT**
㉘ **NEEDLE BEARING 14 x 18 x 15 mm**
㉙ **SPRING**
㉚ **STOP PIN**
㉛ **PARKING BRAKE PAWL**
㉜ **PARKING PAWL SPRING**
㉝ **PARKING BRAKE SHAFT**
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㉟ **ROLLER PIN**
㊱ **PARKING SHIFT ARM**
㊲ **WASHER 5 mm**
㊳ **LOCKPIN**
㊴ **PARKING BRAKE LEVER**
㊵ **LOCK WASHER 6 mm**
㊶ **LOCK WASHER**
㊷ **THROTTLE CONTROL LEVER**
㊸ **THROTTLE CONTROL SHAFT SPRING**
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㊺ **TRANSMISSION HOUSING**
㊻ **TRANSMISSION HOUSING GASKET**
㊼ **THROTTLE CONTROL CABLE BRACKET**
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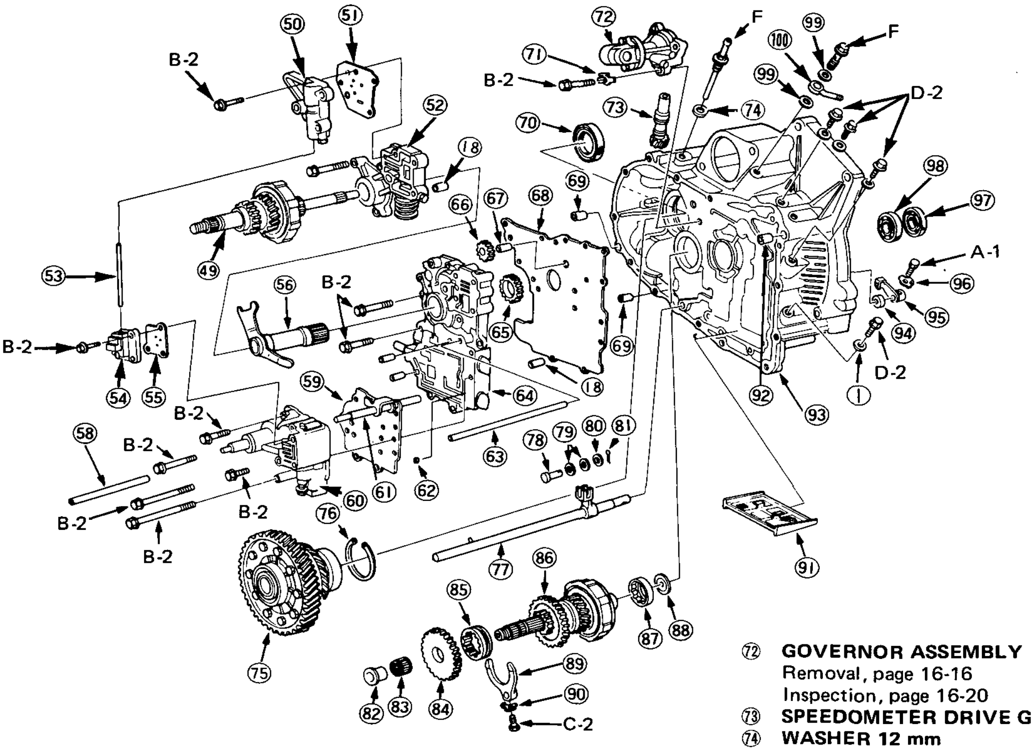
㊽ **REVERSE IDLER GEAR**
Removal, page 16-13
Installation, page 16-49 and 50



㊾ **MAINSHAFT ASSEMBLY**
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Inspection, page 16-28
Assembly, page 16-47
㊿ **LOCK-UP VALVE BODY**
Removal, page 16-17
Inspection, page 16-24
(51) **LOCK-UP VALVE SEPARATOR PLATE**
(52) **REGULATOR ASSEMBLY**
(53) **OIL FEED PIPE**
(54) **CLUTCH PRESSURE CONTROL VALVE BODY**
(55) **CLUTCH PRESSURE CONTROL SEPARATOR PLATE**
(56) **STATOR SHAFT ARM**
Removal, page 16-18
(57) **☆ CLUTCH**
(58) **OD CLUTCH PIPE**
(59) **SERVO VALVE SEPARATOR PLATE**
(60) **SERVO VALVE ASSEMBLY**
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(61) **THROTTLE VALVE SHAFT**
(62) **STEEL BALL**
(63) **1st CLUTCH PIPE**
(64) **MAIN VALVE BODY ASSEMBLY**
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(66) **PUMP DRIVEN GEAR**
(67) **OIL PUMP GEAR SHAFT**
(68) **MAIN VALVE SEPARATOR PLATE**
(69) **DOWEL PIN 14 x 20 mm**
(70) **OIL SEAL 35 x 68 x 9 mm**
(71) **LOCK WASHER 6 mm**
(72) **GOVERNOR ASSEMBLY**
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(73) **SPEEDOMETER DRIVE GEAR**
(74) **WASHER 12 mm**
(75) **DIFFERENTIAL**
(76) **SNAP RING 72 mm**
(77) **CONTROL SHAFT**
(78) **MANUAL VALVE PIN**
(79) **ROLLER**
(80) **WASHER 5 mm**
(81) **COTTER PIN**
(82) **REVERSE GEAR COLLAR**
(83) **NEEDLE BEARING 30 x 36 x 14 mm**
(84) **REVERSE COUNTER GEAR**
(85) **REVERSE SELECTOR GEAR**
(86) **COUNTERSHAFT**
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(88) **OIL GUIDE PLATE**
(89) **REVERSE SHIFT FORK**
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(91) **OIL SCREEN**
(92) **DOWEL PIN 14 x 25 mm**
(93) **TORQUE CONVERTOR HOUSING**
(94) **CONTROL SHAFT OIL SEAL**
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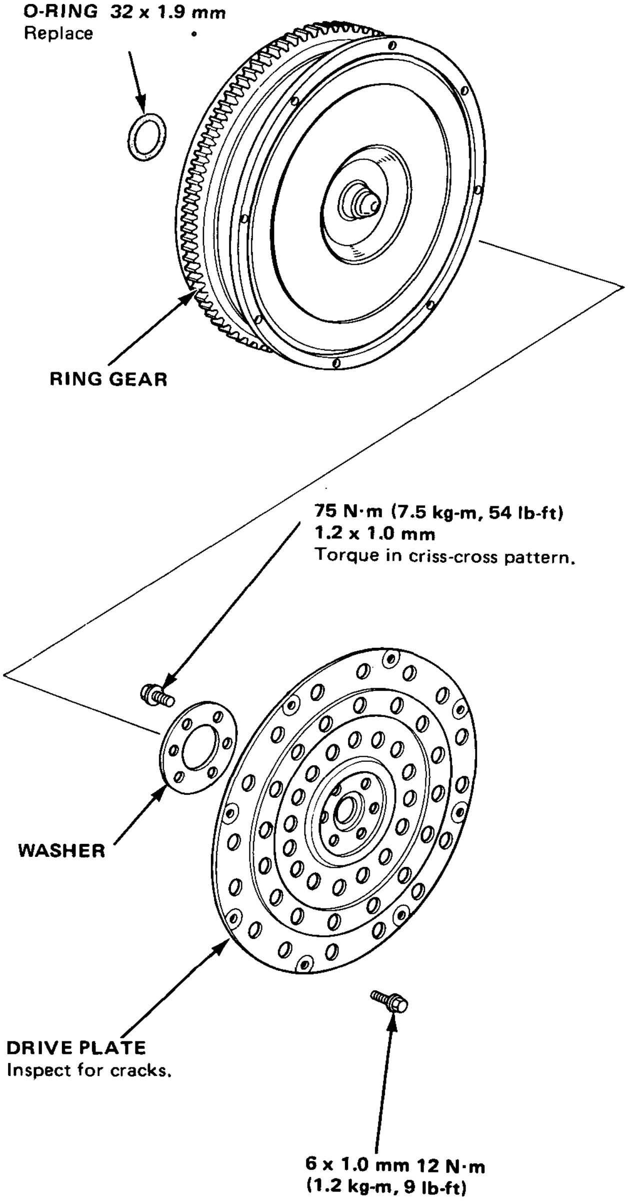
(100) **HOSE JOINT**

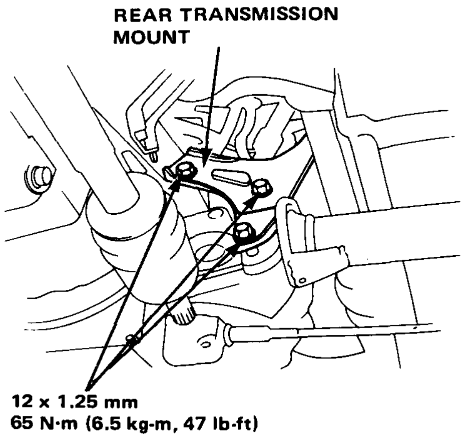
Torque Converter Disassembly


O-RING 32 x 1.9 mm
Replace
RING GEAR
75 N·m (7.5 kg-m, 54 lb-ft)
1.2 x 1.0 mm
Torque in criss-cross pattern.
WASHER
DRIVE PLATE
Inspect for cracks.
6 x 1.0 mm 12 N·m
(1.2 kg-m, 9 lb-ft)

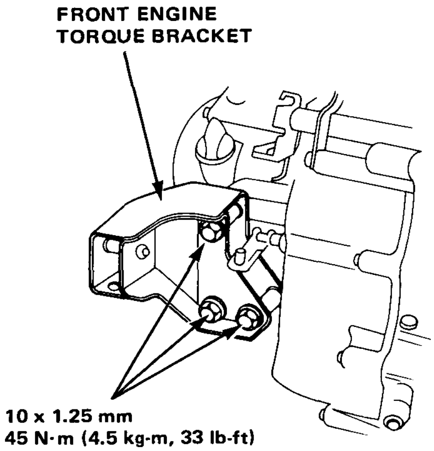
Installation

1. Slide the torque converter onto mainshaft.
2. Place the transmission on transmission jack, and raise to engine level.
3. Check that the two 14 mm dowel pins are installed in torque converter housing.
4. Align dowel pins with holes in block; align torque converter bolt heads with holes in drive plate.
5. If you left the front end connected on driver's side, insert left axle (with new spring clip on the end) into differential as you roll transmission up to the engine.

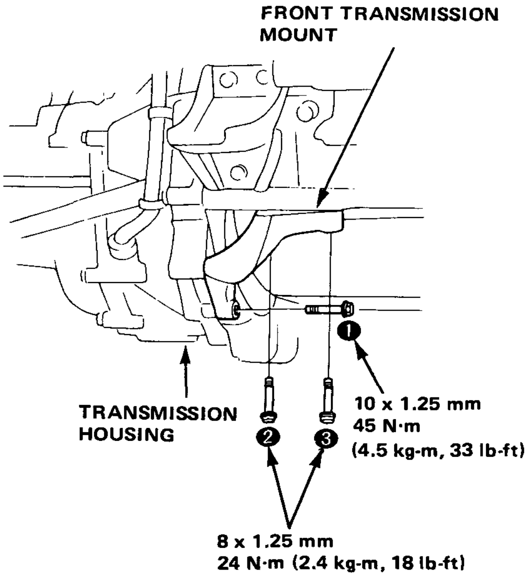
   NOTE: New 26 mm spring clips must be used on both axles.
6. Secure transmission to engine with engine side mounting bolt (12 x 1.25 x 70 mm) and torque to 68 N·m (6.8 kg-m, 50 lb-ft).
7. Attach torque converter to drive plate with eight (6 x 10 x 12 mm) bolts, and torque to 12 N·m (9 lb-ft). Rotate crank as necessary to tighten bolts to 1/2 torque, then final torque, in a criss-cross pattern. Check for free rotation after tightening last bolt.
8. Install the shift cable. (page 16-20)
9. Remove the transmission jack.
10. Install the torque converter cover plate.
11. Install the rear transmission mount and torque its bolts to 65 N·m (6.5 kg-m, 47 lb-ft).


REAR TRANSMISSION MOUNT
12 x 1.25 mm
65 N·m (6.5 kg-m, 47 lb-ft)

12. Install the engine torque bracket and torque its bolts to 45 N·m (4.5 kg-m, 33 lb-ft).


FRONT ENGINE TORQUE BRACKET
10 x 1.25 mm
45 N·m (4.5 kg-m, 33 lb-ft)

13. Loosely install the front transmission mount bolts, then torque to the sequence shown.


FRONT TRANSMISSION MOUNT
TRANSMISSION HOUSING
❶
10 x 1.25 mm
45 N·m
(4.5 kg-m, 33 lb-ft)
❷
❸
8 x 1.25 mm
24 N·m (2.4 kg-m, 18 lb-ft)

14. Install the starter mounting bolts and torque to 45 N·m (4.5 kg-m, 33 lb-ft).

15. Install a new 26 mm spring clip on end of each axle.

16. Turn right steering knuckle fully outward, and slide axle into differential until you feel its spring clip engage side gear. Repeat on left side or, if left axle is already in (step 5), check to be sure spring clip has engaged side gear.

17. Reconnect the lower arm ball joints and torque to 45 N·m (4.5 kg-m, 33 lb-ft).

18. Reconnect the tie-rod end ball joints and torque to 45 N·m (4.5 kg-m, 33 lb-ft).

19. Install the splash shields and exhaust header pipe.

20. Install the front wheels, lower car to ground, and torque lug nuts to 110 N·m (11.0 kg-m, 80 lb-ft).

21. Remove the chain hoist from the 8 mm bolt on the cylinder head.

22. Insert the speedometer cable into gear holder, then secure cable with clip and install boot.

23. Install the top three transmission mounting bolts (12 x 1.25 x 60 mm) and torque to 58 N·m (5.8 kg-m, 42 lb-ft).

24. Connect cooler hoses, and torque banjo bolts to 29 N·m (21 lb-ft).

25. Attach shift control cable to shift lever with pin and clip. (page 16-63)

26. Reinstall the center console.

27. Connecting wiring:

    - Battery positive cable to starter.
    - Black/white wire to starter solenoid.
    - Transmission ground cable.

28. With ignition key OFF, connect ground cable to battery and transmission.

29. Unscrew dipstick from top of transmission end cover and add 2.9 quarts Dexron® ATF through the hole. Reinstall disptick.

    NOTE: If the transmission was disassembled, the ATF fill quantity is 5.6 quarts.

30. Start engine, set parking brake, and shift transmission through all gears three times. Check for proper control cable adjustment.

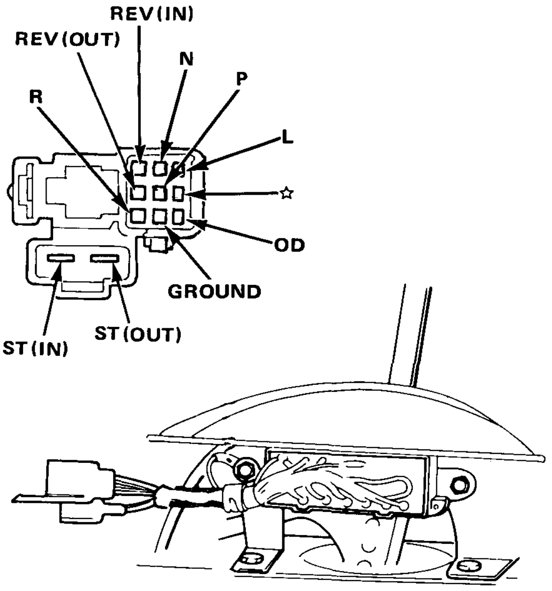
31. Let engine reach operating temperature with transmission in Neutral or Park, then turn it off and check fluid level.

32. Install throttle control cable and adjust (page 16-60).

33. Road test as described on page 16-62.

Neutral/Back-up Switch Check and Installation

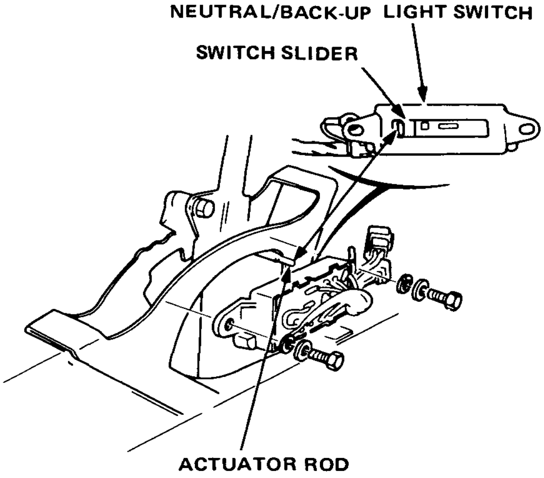
Move selector lever to Park, Reverse, and Neutral to check continuity of combined neutral safety (inhibitor) and back-up light switch.
Replace the switch if there is no continuity between terminals shown on the chart.


REV(IN)
REV(OUT)
N
P
R
L
☆
OD
GROUND
ST(OUT)
ST(IN)

	BI	G/Y	G/Bu	G/BI	G	G/R	G/W
L	○	○					
☆	○	—	○				
OD	○	—	—	○			
N	○	—	—	—	○		
R	○	—	—	—	—	○	
P	○	—	—	—	—	—	○
	E	L	☆	OD	N	R	P

	BI/W	Y	BI/W	G/BI
N	○	—	○	
R		○	—	○
P	○	—	○	
	ST (IN)	REV(IN)	ST(OUT)	REV(OUT)

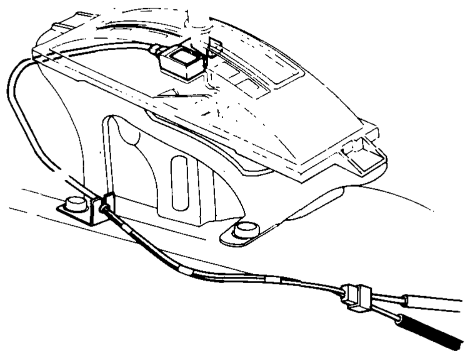
1. Position the switch slider to neutral, as shown.
2. Shift selector lever to neutral.
3. Align the switch lug with the actuator rod.


NEUTRAL/BACK-UP LIGHT SWITCH
SWITCH SLIDER
ACTUATOR ROD

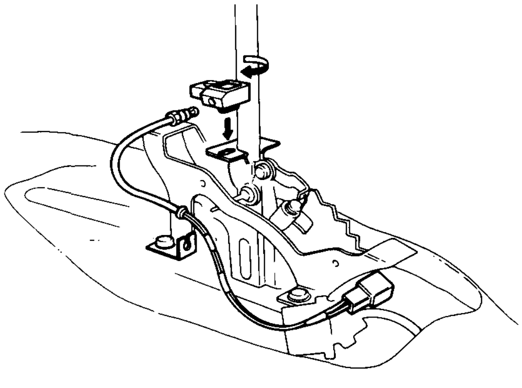
4. Tighten the bolts.

Shift Indicator Light Check and Installation

Check for continuity between indicator light connector terminals as shown. If there is no continuity, check for a burned out bulb or open circuit.



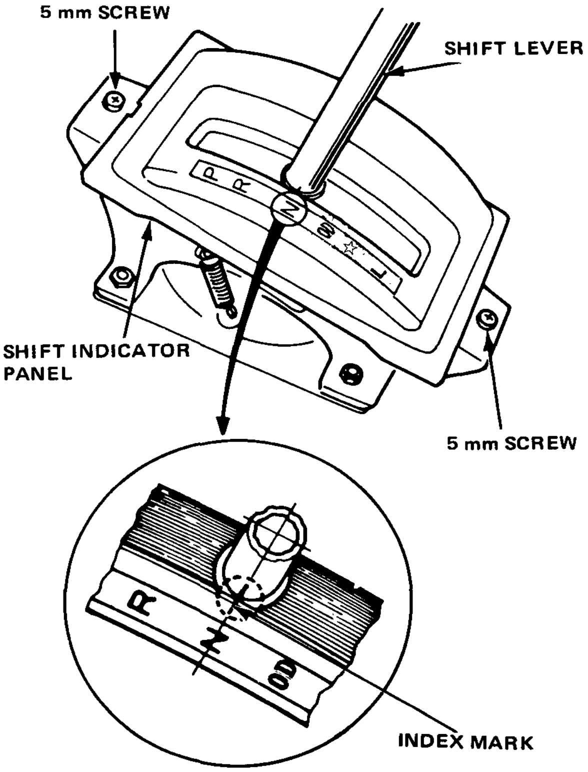
1. Install indicator light bulb in housing, and plug the connector into the wire harness.
2. Insert foot on light housing into slot in selector guide, then turn housing 90° so arm hooks around lever as shown.



Shift Indicator Panel Position Adjustment

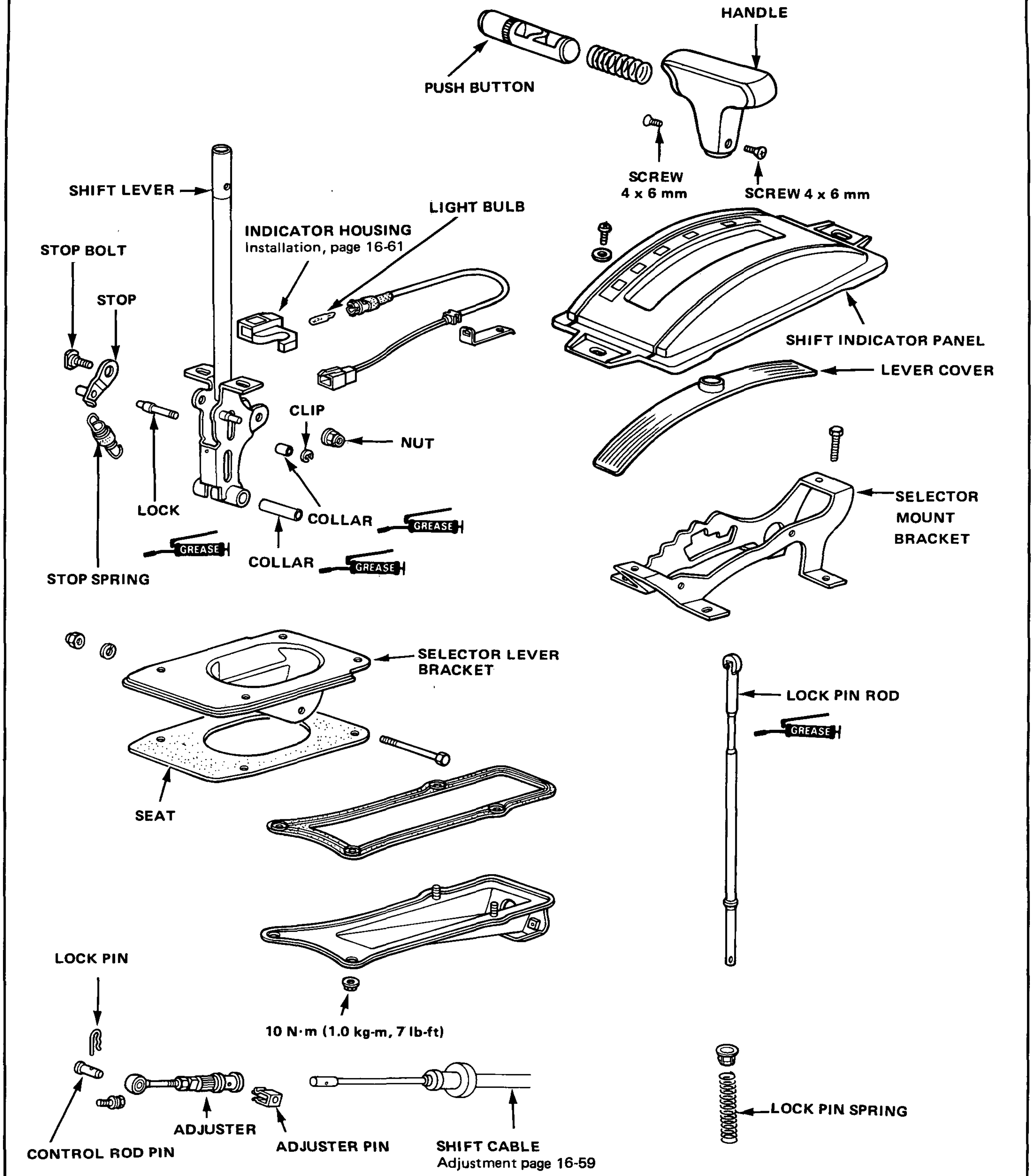
1. Check that the index mark of the indicator aligns with the N mark of the shift indicator panel when the transmission in NEUTRAL.
2. If not aligned, remove panel mounting screws and adjust by moving panel.

   NOTE: Whenever escutcheon is removed for indicator bulb replacement etc., reinstall the panel as described above.



Hondamatic

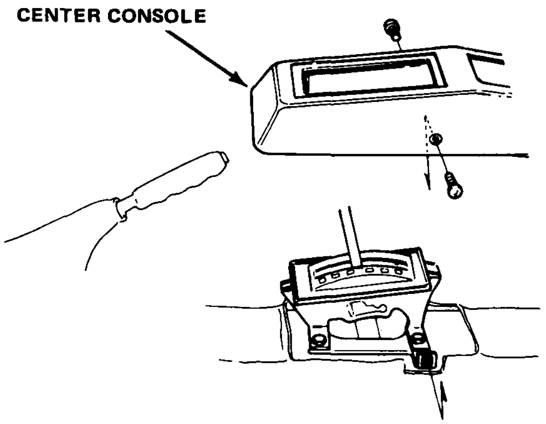
Gear Shift Selector

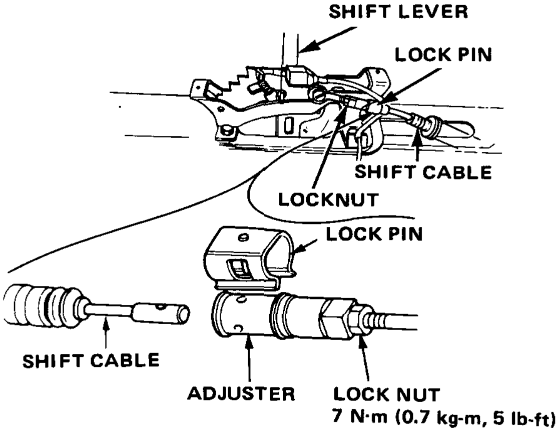


HANDLE
PUSH BUTTON
SCREW
4 x 6 mm
SCREW 4 x 6 mm
SHIFT LEVER
LIGHT BULB
INDICATOR HOUSING
Installation, page 16-61
STOP BOLT
STOP
SHIFT INDICATOR PANEL
LEVER COVER
CLIP
NUT
LOCK
COLLAR
GREASE
COLLAR
GREASE
GREASE
STOP SPRING
SELECTOR
MOUNT
BRACKET
SELECTOR LEVER
BRACKET
LOCK PIN ROD
GREASE
SEAT
LOCK PIN
10 N·m (1.0 kg-m, 7 lb-ft)
LOCK PIN SPRING
ADJUSTER
ADJUSTER PIN
SHIFT CABLE
Adjustment page 16-59
CONTROL ROD PIN

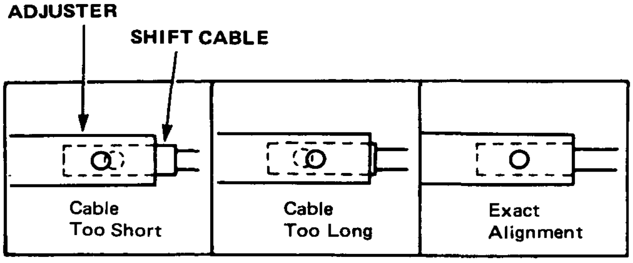
Shift Cable Adjustment

1. Start engine. Shift to reverse to see if reverse gear engages. If not, refer to troubleshooting on page 16-4.
2. With engine off, remove console.
3. Shift to Drive, then remove lock pin from cable adjuster.


CENTER CONSOLE


SHIFT LEVER
LOCK PIN
SHIFT CABLE
LOCKNUT
LOCK PIN
SHIFT CABLE
ADJUSTER
LOCK NUT
7 N·m (0.7 kg-m, 5 lb-ft)

4. Check that the hole in the adjuster is perfectly aligned with the hole in the shift cable.


ADJUSTER
SHIFT CABLE
Cable Too Short
Cable Too Long
Exact Alignment

NOTE: There are two holes in end of the shift cable. They are positioned 90° apart to allow cable adjustments in 1/4 turn increments.

5. If not perfectly aligned, loosen locknut on shift cable and adjust as required.
6. Tighten the locknuts.
7. Install lock pin on adjuster.

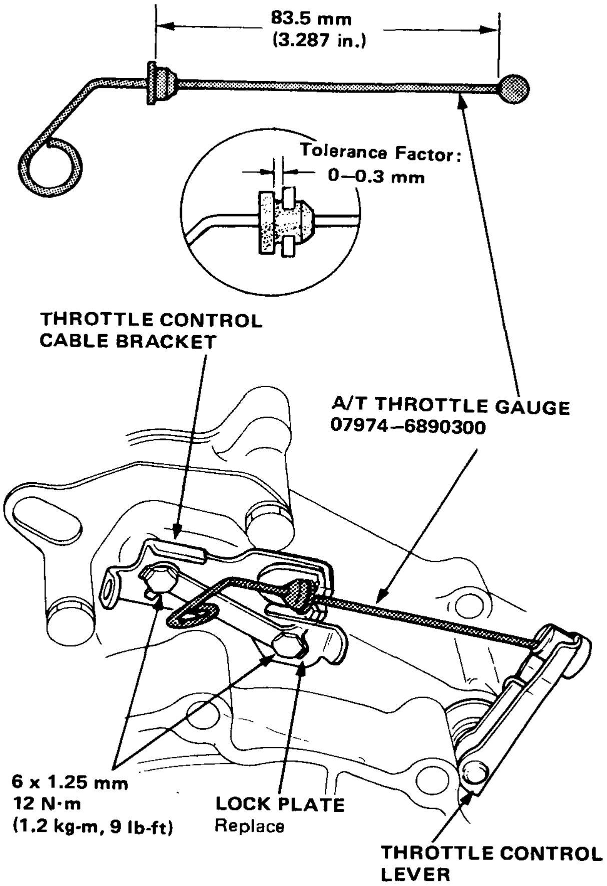
   NOTE: If you feel the lock pin binding as you reinstall it, the cable is still out of adjustment and must be readjusted again.
8. Start engine and check shift lever in all gears. If any gear does not work properly, refer to troubleshooting on page 16-4.

Throttle Control Cable Bracket Adjustment

1. Disconnect the throttle control cable from the throttle control lever.
2. Bend down the lock tabs of the lock plate and remove the two 6 mm bolts to free the bracket.
3. Loosely install a new lock plate.
4. Position the special tool between the throttle control lever and the bracket as shown.

   NOTE: The special tool is designed so that the distance between the lever and the bracket is 83.5 mm (3.287 in.) when it is installed.
5. Position the bracket so that there is no binding between the bracket and the special tool (tolerance 0 to +0.3 mm).
   Then tighten the two 6 mm bolts, bend up the lock plate tabs against the bolts heads.

   CAUTION: Make sure the control lever doesn't get pulled toward the bracket side as you tighten the bolts.


83.5 mm
(3.287 in.)
Tolerance Factor:
0—0.3 mm
THROTTLE CONTROL
CABLE BRACKET
A/T THROTTLE GAUGE
07974—6890300
6 x 1.25 mm
12 N·m
(1.2 kg-m, 9 lb-ft)
LOCK PLATE
Replace
THROTTLE CONTROL
LEVER

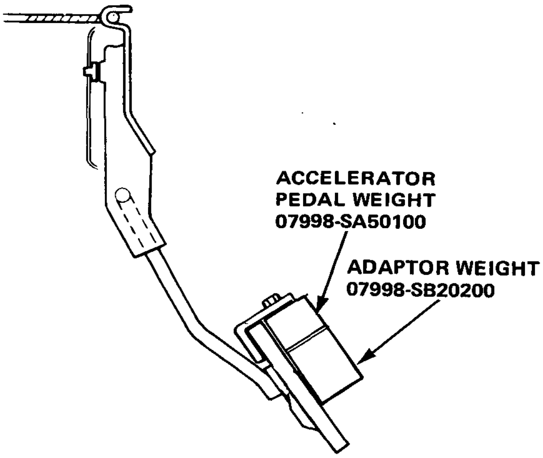
Throttle Control Cable Adjustment/Inspection

NOTE: Perform the following inspections before adjusting the throttle control calbe.

- The carburetor throttle cable play is correct. See page 12-4.
- The engine is warmed-up to operating temperature.

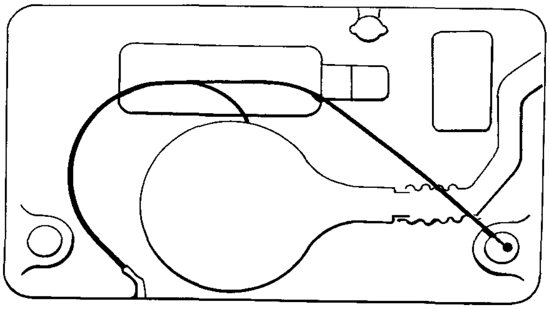
  NOTE: The cooling fan should come on twice or more.
- The idle speed is correct.
  See page 12-13.
- The distance between the throttle control lever and the throttle control bracket is correct as shown in left column.

1. With the engine off, disconnect the throttle control cable from the throttle control lever.
2. Attach a weight of about 1.3 kg (2.6 lbs) to the accelerator pedal. Raise the pedal, then release it, this will allow the weight to remove the normal free play from the throttle cable.

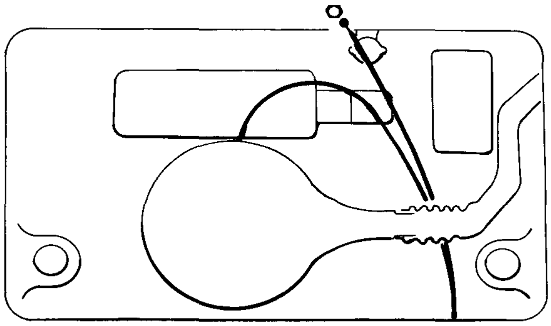

ACCELERATOR
PEDAL WEIGHT
07998-SA50100
ADAPTOR WEIGHT
07998-SB20200

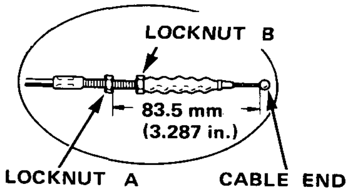
3. Secure the throttle control cable with clamps as shown.

L/H

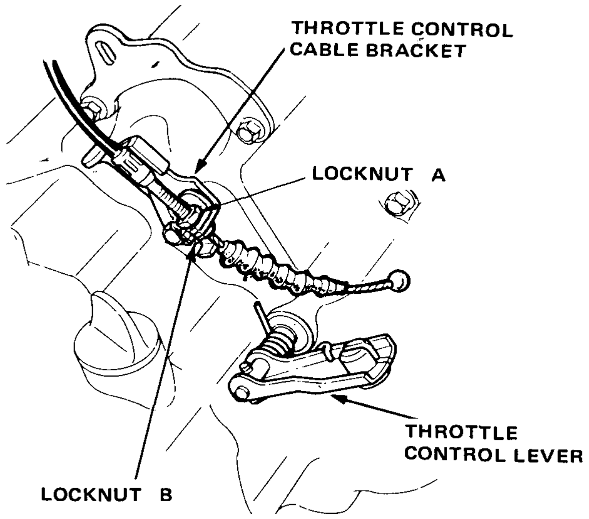


R/H



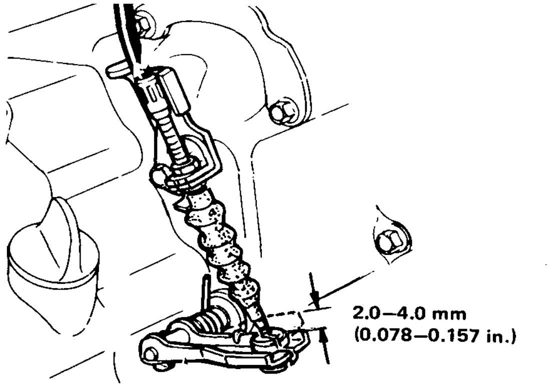

LOCKNUT B
83.5 mm
(3.287 in.)
LOCKNUT A
CABLE END

4. L/H: Lay the end of the throttle control cable on the R damper shock tower.
   R/H: Lay the end of the throttle control cable on the radiator cap.
5. Adjust the distance between the throttle control cable end and nut (A) to 84.0 mm (3.306 in.)
6. Insert the end of throttle control cable in the groove of the throttle control lever.


THROTTLE CONTROL CABLE BRACKET
LOCKNUT A
THROTTLE CONTROL LEVER
LOCKNUT B

7. Insert the throttle control cable in the bracket and secure with lock nut (B).

   NOTE: *Make sure the cable is not kinked or twisted.*
8. Check that the cable moves freely by depressing the accelerator.
9. Remove the weight on the accelerator pedal and push the pedal to make sure that there is the specified play at the throttle control lever.


2.0–4.0 mm
(0.078–0.157 in.)

10. Start the engine and check the synchronization between the carburetor and the throttle control cable.

    NOTE: The throttle control lever should start to move as engine speed increases.

    - If the throttle control lever moves before engine speed increases, turn the cable lock nut A counter clockwise and re-tighten lock nut B.
    - *If the throttle control lever moves after engine speed increases, turn lock nut A clockwise and re-tighten the lock nut B.*

Road Test

After transmission is installed:

1. Make sure the floor mat does not interfere with accelerator pedal travel. Fully depress accelerator pedal and check carburetor to make sure throttle level is fully opened.

2. Release accelerator pedal and check cable to be sure it has slight play or slack.

3. Apply parking brake and check wheels. Move shift selector to ☆ while depressing brake pedal. Start engine, depress accelerator pedal, and release it suddenly. Engine should not stall.

4. Move selector lever to L (☆) and R positions, and check to be sure car moves normally in each gear. Check under acceleration, cruise and coast.

5. Move selector lever to ☆ , and check to be sure lock-up clutch is on at 34–39 km/h with throttle 1/8 open.

6. On upgrade and downgrade, apply brakes to stop car. Move selector lever to P , then release brake pedal and see if park position will hold car.

   NOTE: Always apply parking brake or brake pedal before shifting out of Park to another gear.

Differential (Manual Transmission)

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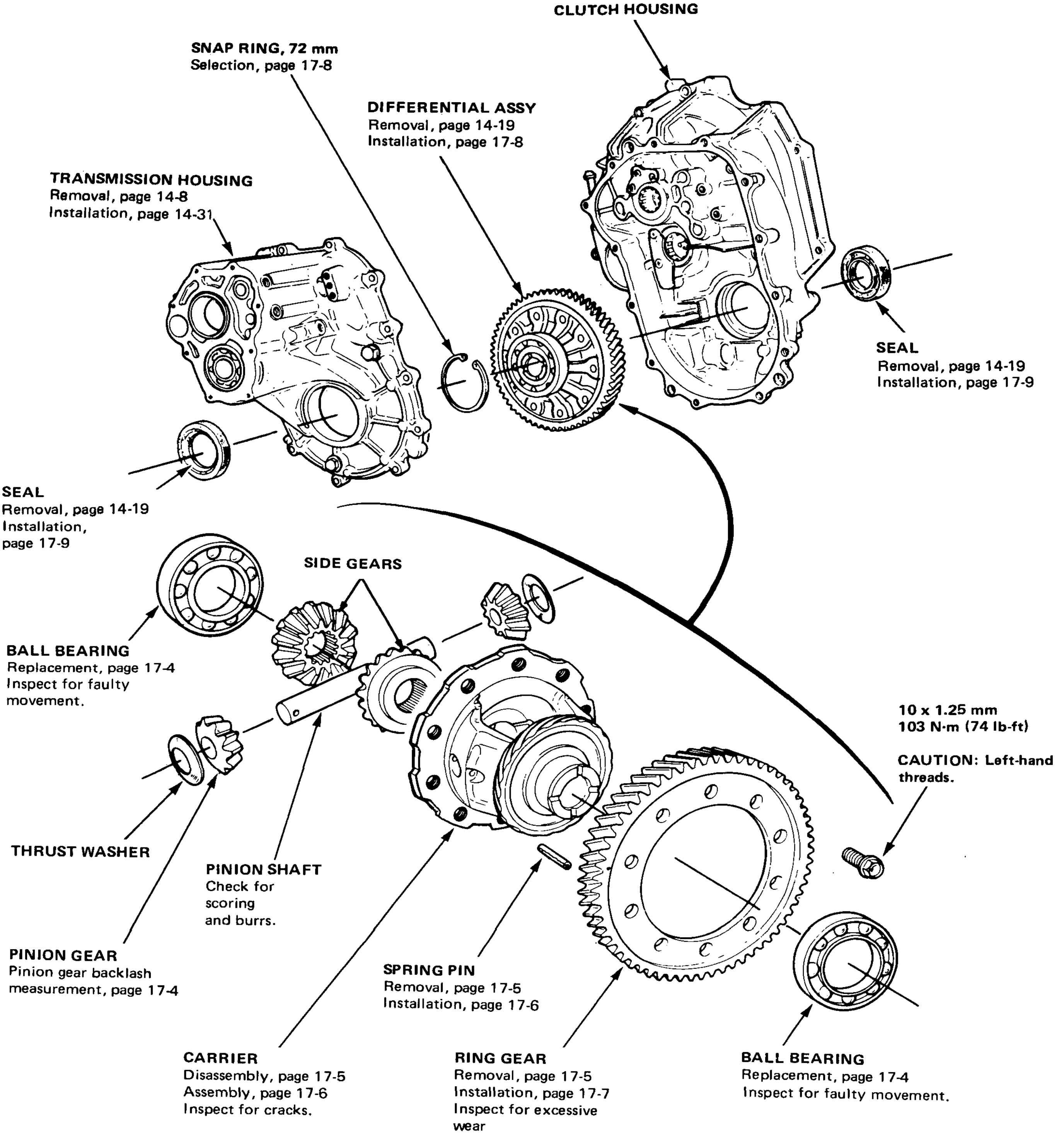

CLUTCH HOUSING

SNAP RING, 72 mm
Selection, page 17-8

DIFFERENTIAL ASSY
Removal, page 14-19
Installation, page 17-8

TRANSMISSION HOUSING
Removal, page 14-8
Installation, page 14-31

SEAL
Removal, page 14-19
Installation, page 17-9

SEAL
Removal, page 14-19
Installation,
page 17-9

SIDE GEARS

BALL BEARING
Replacement, page 17-4
Inspect for faulty
movement.

10 x 1.25 mm
103 N·m (74 lb-ft)

CAUTION: Left-hand
threads.

THRUST WASHER

PINION SHAFT
Check for
scoring
and burrs.

PINION GEAR
Pinion gear backlash
measurement, page 17-4

SPRING PIN
Removal, page 17-5
Installation, page 17-6

CARRIER
Disassembly, page 17-5
Assembly, page 17-6
Inspect for cracks.

RING GEAR
Removal, page 17-5
Installation, page 17-7
Inspect for excessive
wear

BALL BEARING
Replacement, page 17-4
Inspect for faulty movement.

Differential (Automatic Transmission)

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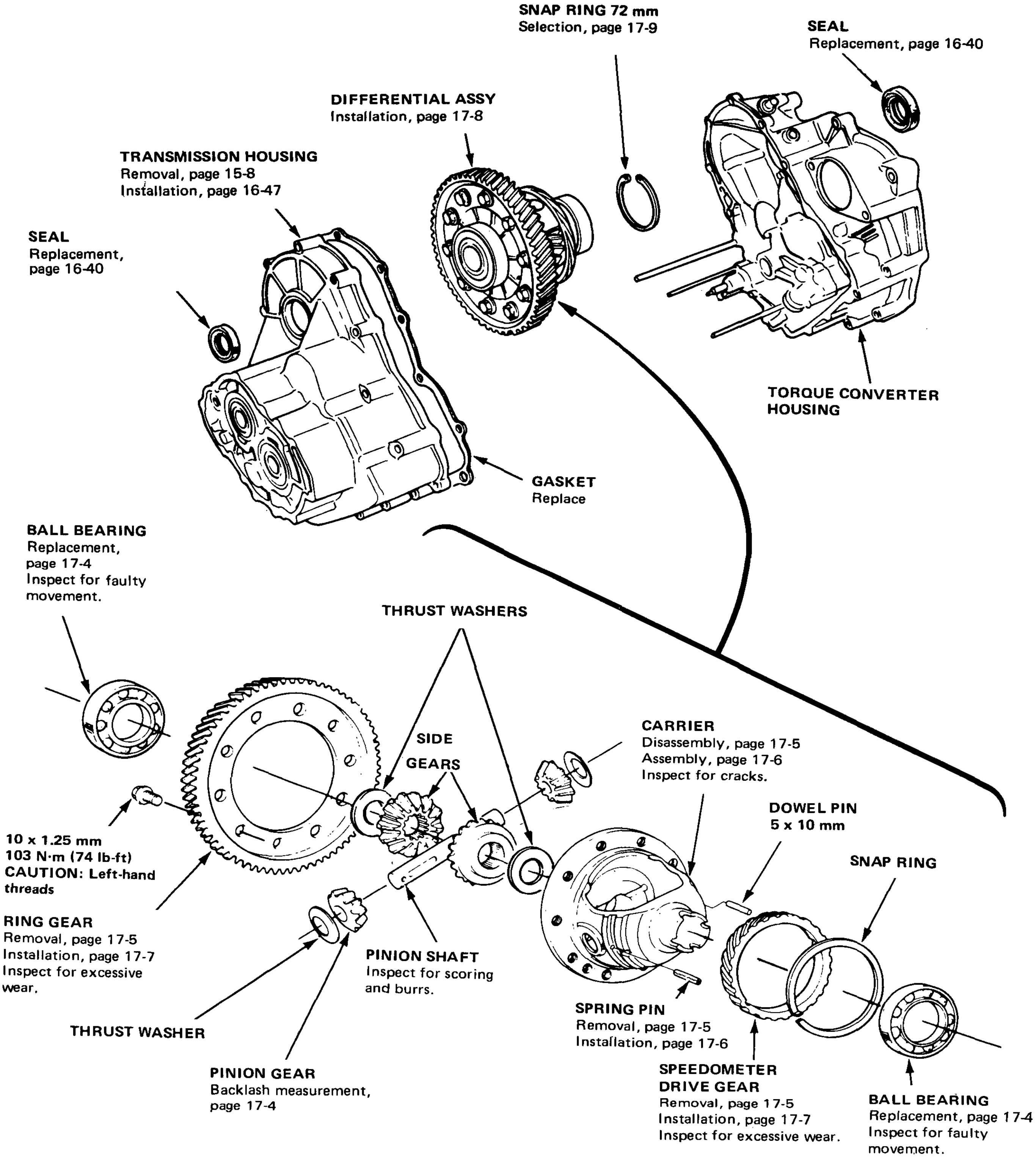
SNAP RING 72 mm
Selection, page 17-9
SEAL
Replacement, page 16-40
DIFFERENTIAL ASSY
Installation, page 17-8
TRANSMISSION HOUSING
Removal, page 15-8
Installation, page 16-47
SEAL
Replacement,
page 16-40
TORQUE CONVERTER
HOUSING
GASKET
Replace
BALL BEARING
Replacement,
page 17-4
Inspect for faulty
movement.
THRUST WASHERS
SIDE
GEARS
CARRIER
Disassembly, page 17-5
Assembly, page 17-6
Inspect for cracks.
DOWEL PIN
5 x 10 mm
SNAP RING
10 x 1.25 mm
103 N·m (74 lb-ft)
CAUTION: Left-hand
threads
RING GEAR
Removal, page 17-5
Installation, page 17-7
Inspect for excessive
wear.
PINION SHAFT
Inspect for scoring
and burrs.
SPRING PIN
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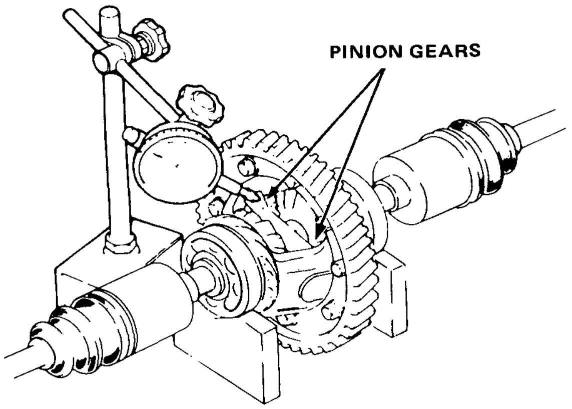
THRUST WASHER
PINION GEAR
Backlash measurement,
page 17-4
SPEEDOMETER
DRIVE GEAR
Removal, page 17-5
Installation, page 17-7
Inspect for excessive wear.
BALL BEARING
Replacement, page 17-4
Inspect for faulty
movement.

Differential

Backlash Inspection

1. Place differential assembly on V-blocks and install both axles.
2. Check backlash of both pinion gears.

   Standard (New): 0.05–0.15 mm (0.002–0.006 in.)

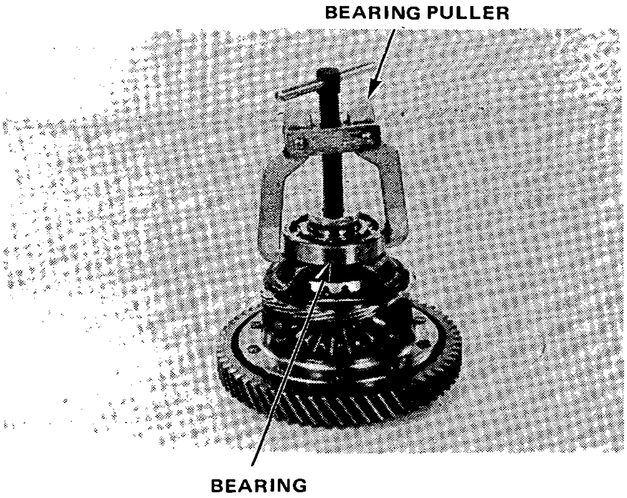

PINION GEARS

3. If out of tolerance, disassemble the differential and select new thrust washers according to the chart on page 17-6.

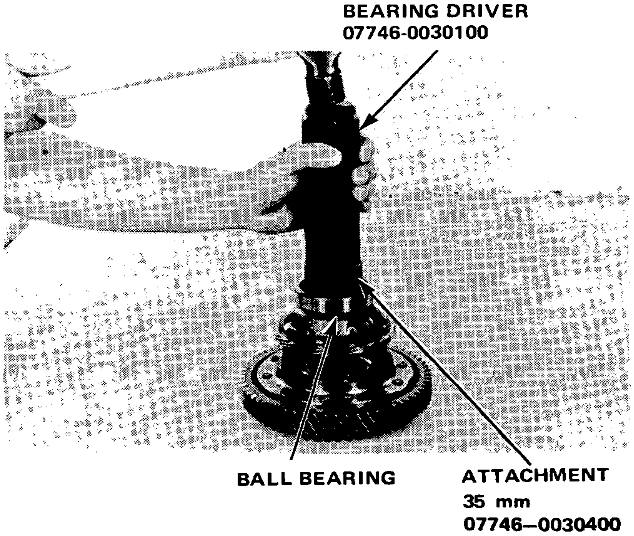
Bearing Replacement

NOTE: Check bearings for wear and rough rotation. If bearings are OK, removal is not necessary.

1. Remove bearings using a standard bearing puller.


BEARING PULLER
BEARING

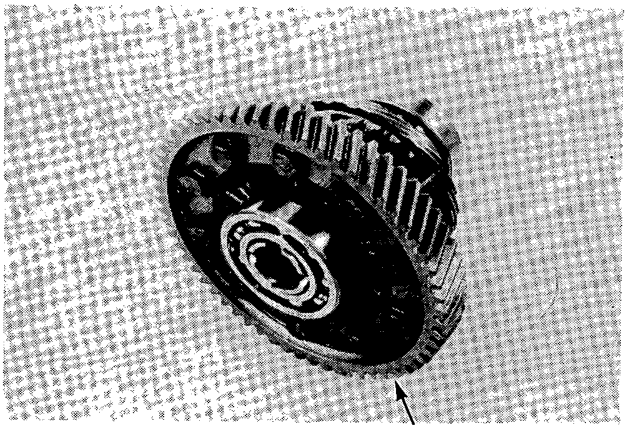
2. Install new bearings.


BEARING DRIVER
07746-0030100
BALL BEARING
ATTACHMENT
35 mm
07746–0030400

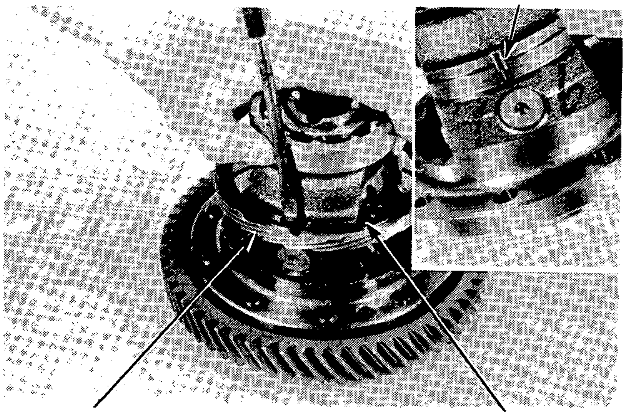
Inspection/Disassembly

1. Remove ring gear and inspect teeth for excessive wear.

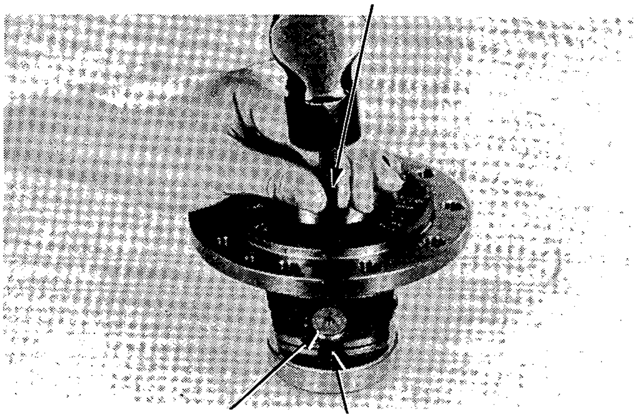
   CAUTION: The ring gear bolts have left-hand threads.



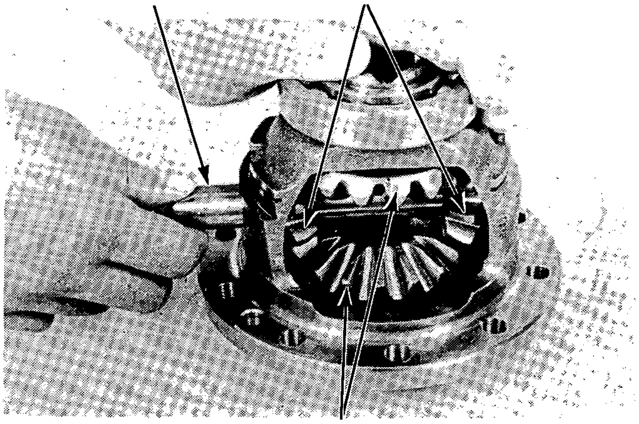
2. Automatic Only:
   Pry snap ring off carrier, then remove speedometer gear and dowel pin.


DOWEL PIN
SPEEDOMETER DRIVE GEAR
SNAP RING

3. Drive out spring pin with pin punch.


4 mm PIN PUNCH
PINION SHAFT
SPRING PIN
Replace

4. Remove pinion shaft, pinion gears and thrust washers.


PINION SHAFT
Inspect for scoring and burrs.
PINION GEARS
SIDE GEARS

5. Wash parts thoroughly in solvent and dry with compressed air. Inspect all parts for wear or damage and replace any that are defective.

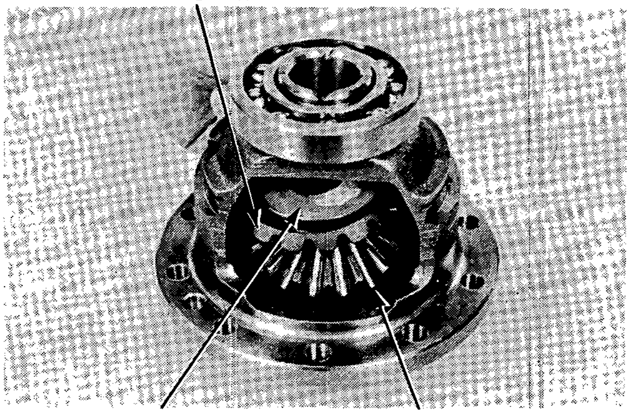
Differential

Reassembly

1. Install the side gears in differential carrier.

   NOTE: On cars equipped with the Automatic transmission, install a thrust washer between each side gear and carrier.

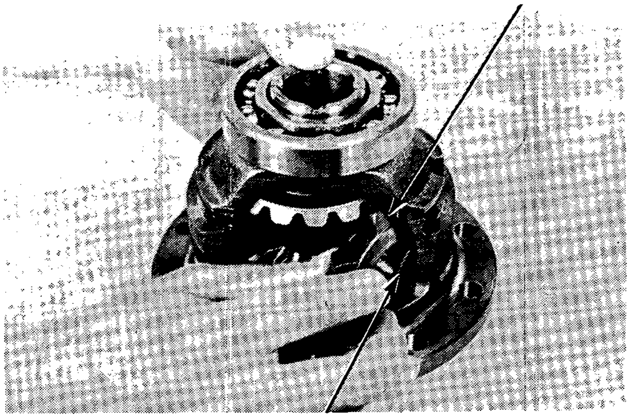
   CAUTION: Coat all gears with molybdenum disulfide grease on all sides.


SIDE GEAR
THRUST WASHER
Automatic only.
SIDE GEAR

2. Set pinion gears in place exactly opposite each other in mesh with side gears, then install a thrust washer behind each one. Washers must be of equal thickness.

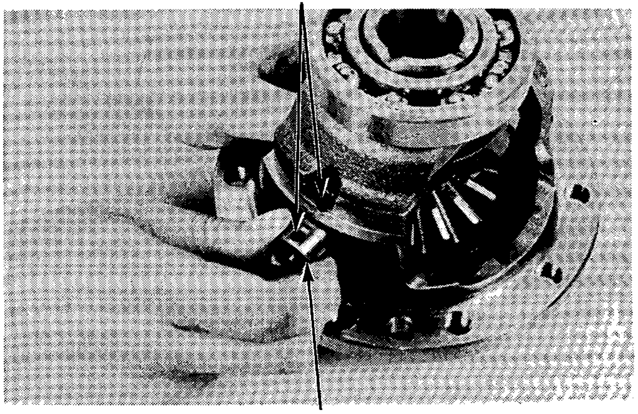
Thrust Washers

PART NUMBER	THICKNESS
41351-689-000	0.7 mm (0.028 in.)
41352-689-000	0.8 mm (0.031 in.)
41353-689-000	0.9 mm (0.035 in.)
41354-689-000	1.0 mm (0.039 in.)

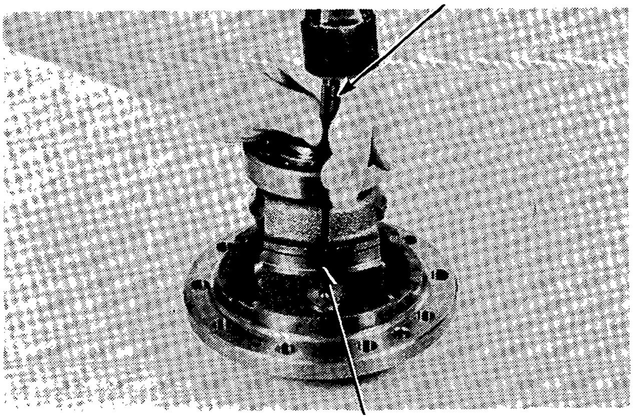

PINION GEAR
THRUST WASHER

3. Rotate gears as shown until shaft holes in pinion gears line up with shaft holes in carrier.

4. Insert pinion shaft and align spring pin holes in one end with matching hole in carrier.


Align spring pin holes.
PINION SHAFT

5. Drive in a new spring pin with pin punch.

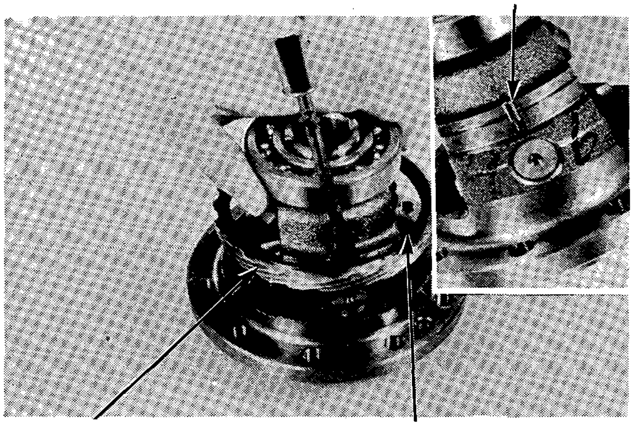

4 mm PIN PUNCH
SPRING PIN

6. Check backlash of both pinion gears again.

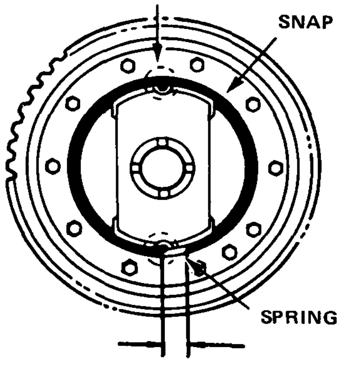
   Standard (New): 0.05—0.15 mm (0.002—0.006 in.)

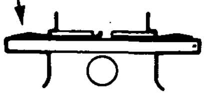
   - If still out of tolerance, replace both pinion gears, then recheck backlash.
   - If still out of tolerance, replace side gears, and re-check backlash.
   - If still out of tolerance, replace carrier assembly.

7. Automatic Only:
   Install the dowel pin and then the speedometer drive gear with its chamfer (on inside diameter) facing carrier. Secure with snap ring.


DOWEL PIN
SPEEDOMETER DRIVE GEAR
SNAP RING

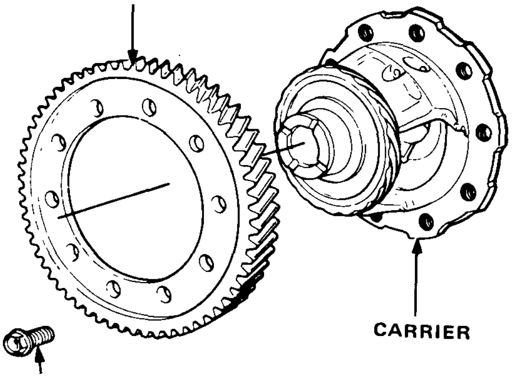
8. Automatic Only:
   Align snap ring on carrier as shown.


DOWEL PIN 5 x 10 mm
SNAP RING
SPRING PIN
END GAP



9. Install the ring gear with the chamfer on inside diameter facing the carrier.

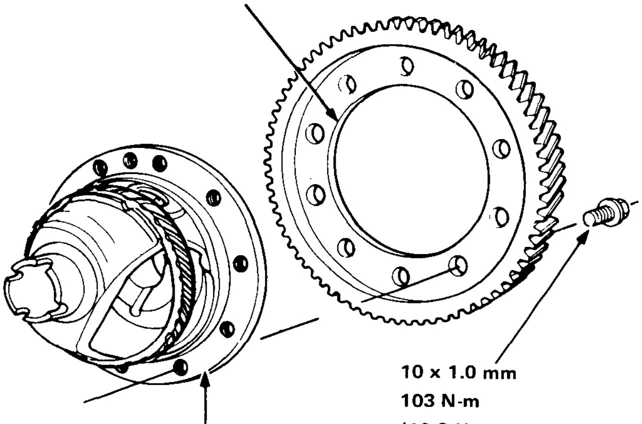
Manual Transmission


RING GEAR
CARRIER

10 x 1.0 mm
103 N·m
(10.3 kg-m, 74 lb-ft)

CAUTION: Ring gear bolts have left-hand threads.

Automatic Transmission


RING GEAR
CARRIER

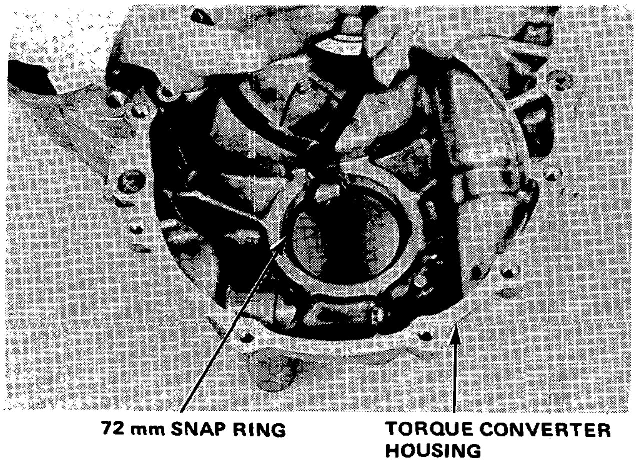
10 x 1.0 mm
103 N-m
(10.3 Kg-m, 74 lb-ft)

CAUTION: Ring gear bolts have left-hand threads.

Differential

Installation

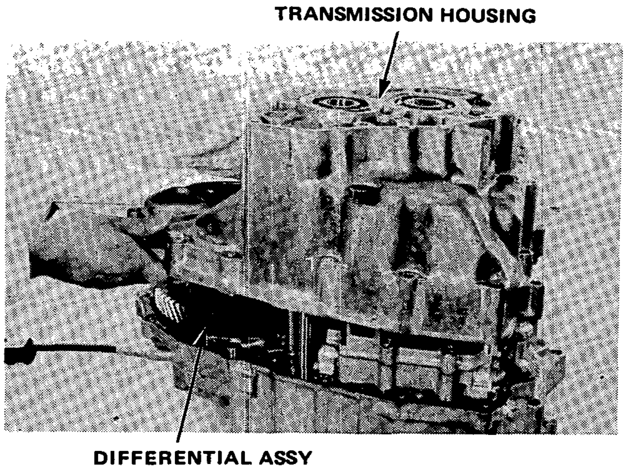
1. Automatic Only:
   Install 72 mm snap ring in torque converter housing. Do not install oil seal yet.


72 mm SNAP RING
TORQUE CONVERTER HOUSING

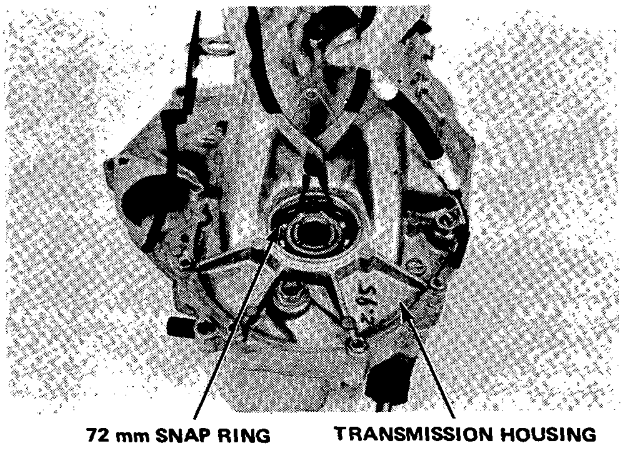
2. Install differential assembly and all transmission gear assemblies in clutch/torque converter housing. Refer to page 14-28 or page 16-43 (Automatic).

3. Install dowel pins in clutch/torque converter housing then carefully lower the transmission housing into place.

   NOTE: (Automatic only) Place a new gasket on torque converter housing before installing transmission housing.


TRANSMISSION HOUSING
DIFFERENTIAL ASSY

4. Manual Only:
   Install 72 mm snap ring in transmission housing.

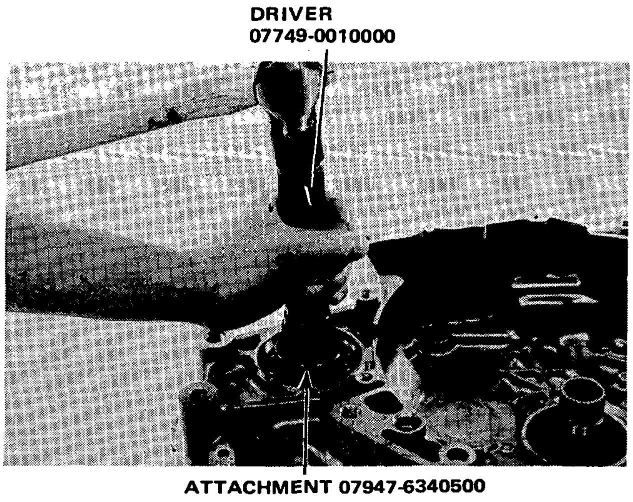

72 mm SNAP RING
TRANSMISSION HOUSING

Side Clearance Measurement

NOTE: If clutch/torque converter housing, transmission housing, differential carrier, or differential bearings were replaced, the differential side clearance must be measured.

5. Seat the snap ring.
   Automatic: Tap on transmission housing side of differential assembly with driver and attachment to seat 72 mm snap ring in torque converter housing.

   Manual: Tap on clutch housing side of differential assembly with driver and attachment to seat 72 mm snap ring in transmission housing.


DRIVER
07749-0010000
ATTACHMENT 07947-6340500

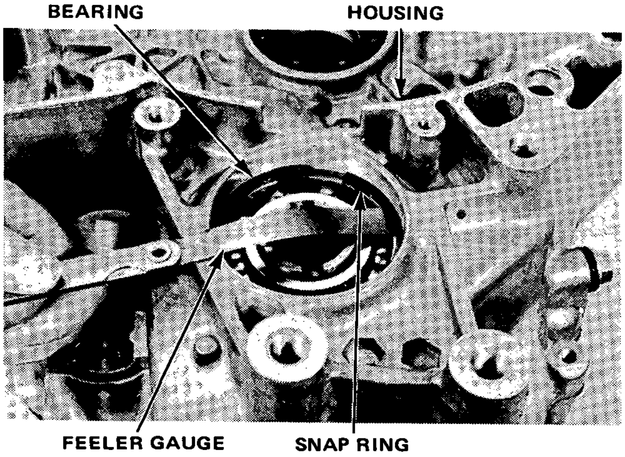
6. Turn the transmission over and seat the differential assembly.

   Automatic: Tap on torque converter housing side of differential assembly with driver and attachment to seat the assembly in transmission housing.

   Manual: Tap on transmission housing side of differential assembly with driver and attachment to seat the assembly in the clutch housing.

7. Measure clearance between snap ring and outer race of bearing in transmission housing (Manual), or torque converter housing (Automatic).

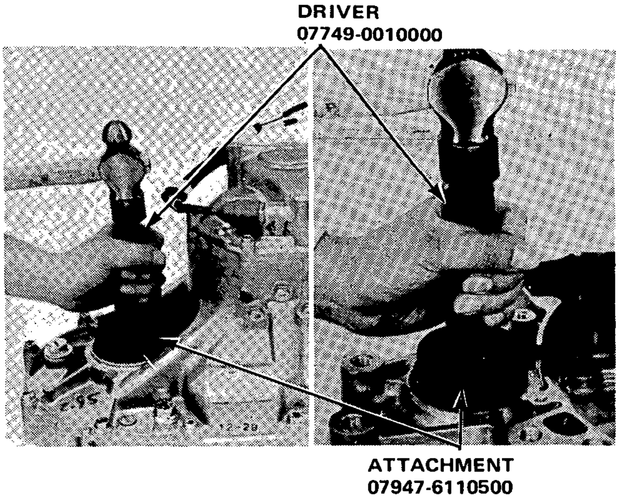
Side Clearance: 0.15 mm (0.006 in.) Max.



8. If out of limits, select new snap ring from following table and install. Repeat Steps 6-8.

Part Number	Thickness
90414-634-000	2.45 mm (0.096 in.)
90415-634-000	2.55 mm (0.100 in.)
90416-634-000	2.65 mm (0.104 in.)
90417-634-000	2.75 mm (0.108 in.)
90418-634-000	2.85 mm (0.112 in.)
90419-634-000	2.95 mm (0.116 in.)

9. Apply oil to new differential seals and install them in clutch/torque converter housing and transmission housing with special tools as shown.



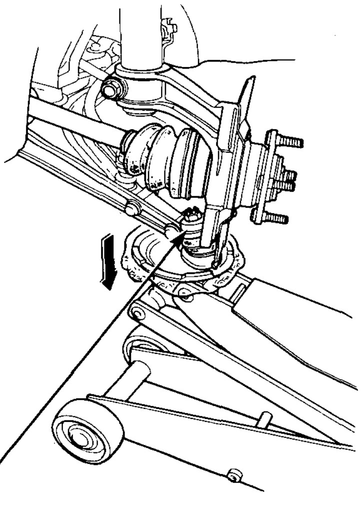
Driveshafts

Removal

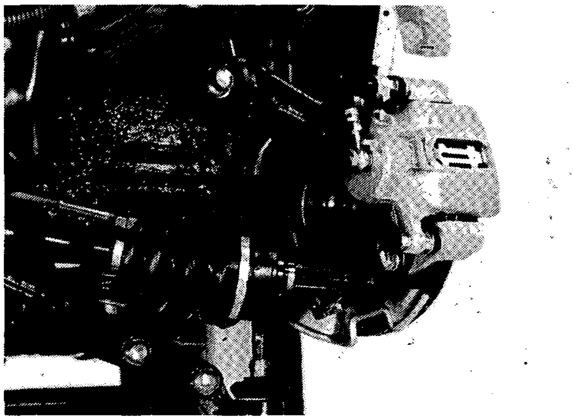
1. Loosen the front wheel spindle nut with a 32 mm socket wrench.
2. Raise the front end of the car and support it with safety stands (see page 1-7 for the proper locations for the stands).
3. Drain the transmission oil. (Page 5-3)
4. Remove the front wheel and the spindle nut.
5. Use a floor jack to support the lower control arm, then remove the ball joint cotter pin and nut.

CAUTION: Make sure that the floor jack is positioned securely under the lower control arm, at the ball joint. Otherwise, torsion bar tension on the lower control arm will cause the arm to jump or spring suddenly away from the hub as the ball joint puller is being used.

6. Separate the ball joint from the front hub with the ball joint puller.
7. Slowly, lower the floor jack to lower the control arm.



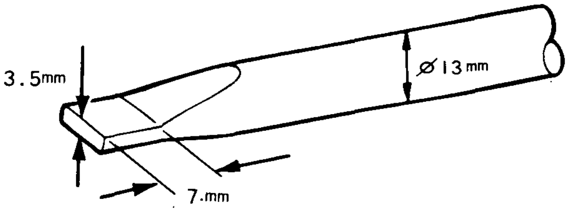
8. Pull the front hub outward, all the way off the driveshaft.

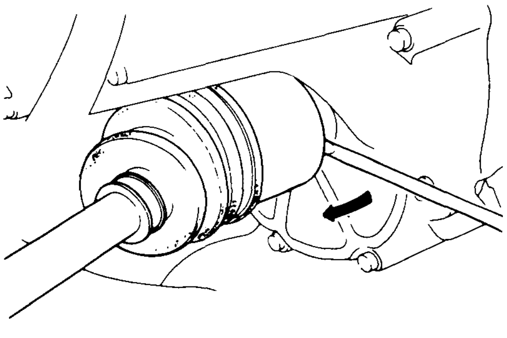


9. Using a tool like the one described below, pry out the inboard CV joint approximately 12 mm (1/2 in) in order to force the spring clip out of the groove in the differential side gears.

CAUTION:
- **Pry carefully to avoid damaging the oil seal.**
- **Do not pull on the inboard CV joint; it may come apart.**

10. Pull the driveshaft out of the transmission case.

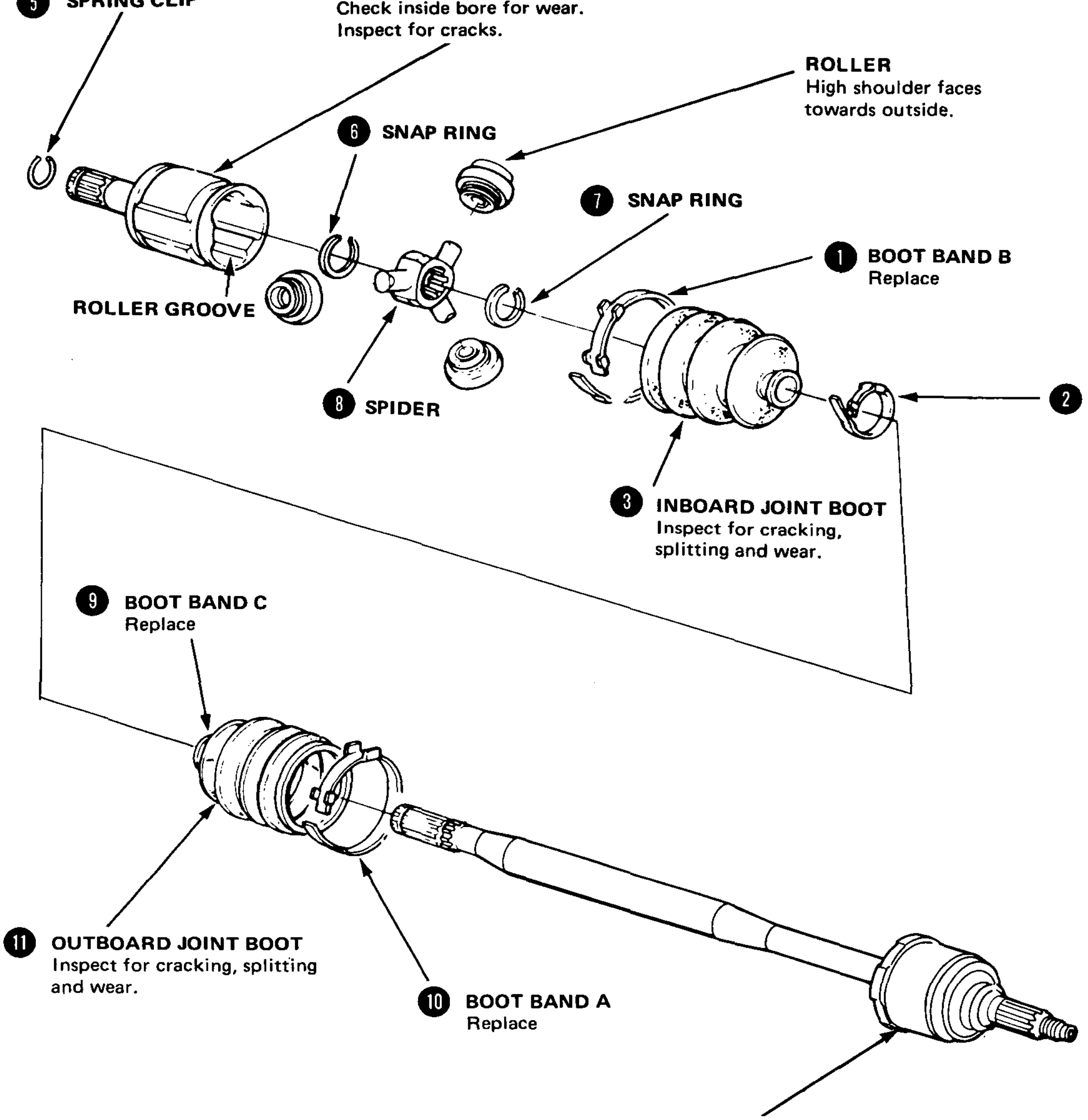




Disassembly/Inspection: Roller type joint

Disassemble in numbered sequence.

NOTE: Mark the rollers and roller grooves during disassembly to ensure proper positioning during reassembly.



❹ **INBOARD CV JOINT**
Check splines for wear and damage.
Check inside bore for wear.
Inspect for cracks.

❺ **SPRING CLIP**

ROLLER
High shoulder faces towards outside.

❻ **SNAP RING**

❼ **SNAP RING**

❶ **BOOT BAND B**
Replace

ROLLER GROOVE

❽ **SPIDER**

❷ **BOOT BAND C**
Replace

❸ **INBOARD JOINT BOOT**
Inspect for cracking, splitting and wear.

❾ **BOOT BAND C**
Replace

⓫ **OUTBOARD JOINT BOOT**
Inspect for cracking, splitting and wear.

❿ **BOOT BAND A**
Replace

OUTBOARD CV JOINT
Inspect for faulty movement and wear.
Inspect ball bearings while rotating.

Driveshafts

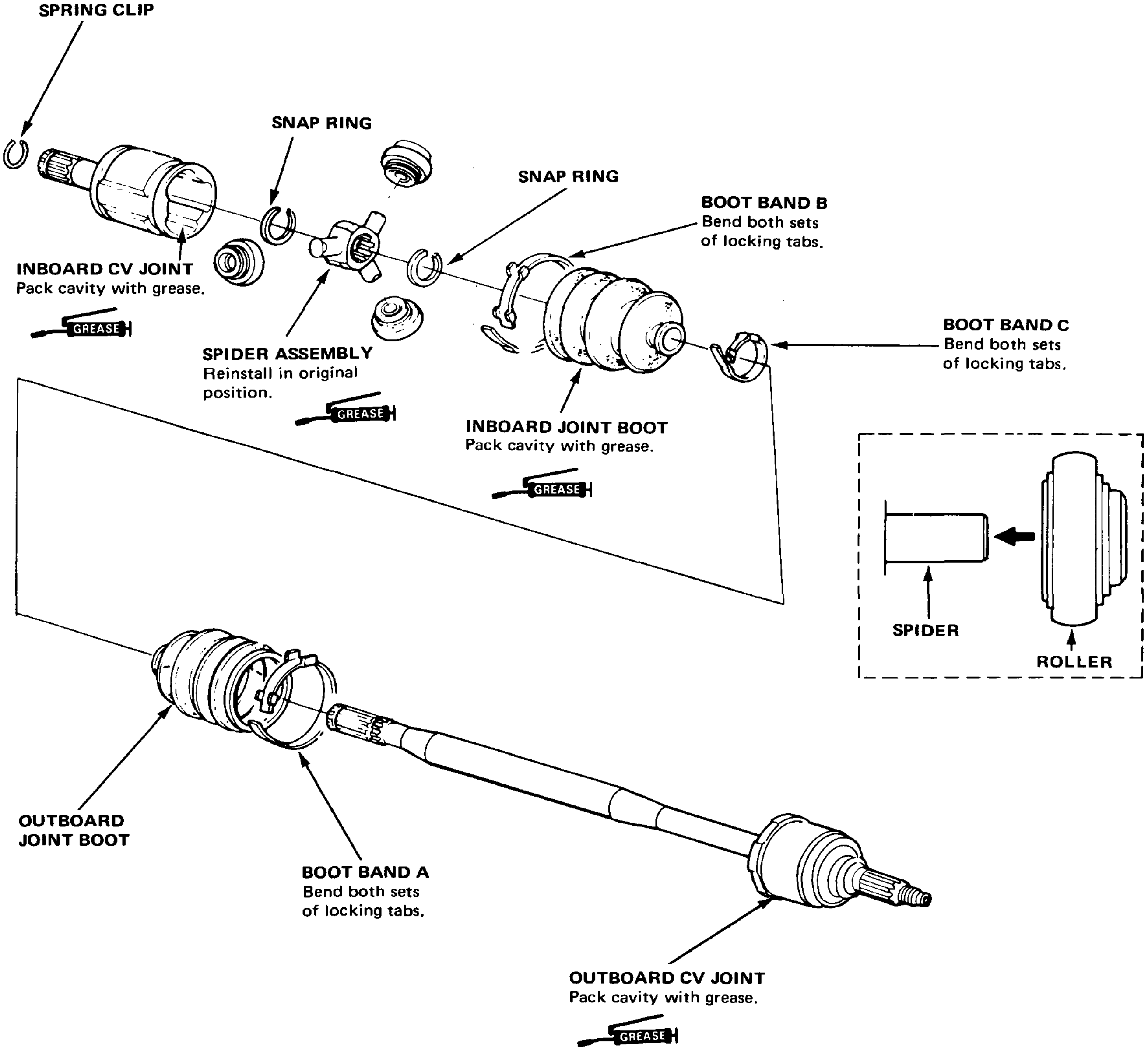
Reassembly : Roller type joint

1. Reassemble the driveshafts in reverse order of disassembly.

   GREASE Thoroughly pack the bearings and both the inboard and outboard CV joints with high quality molybdenum disulfide grease when reassembling the driveshaft.

2. Install the rollers and bearing races on the spider shafts, then slide the spider assembly into the inboard shaft joint.
   CAUTION: Avoid getting oil or grease on the rubber parts.

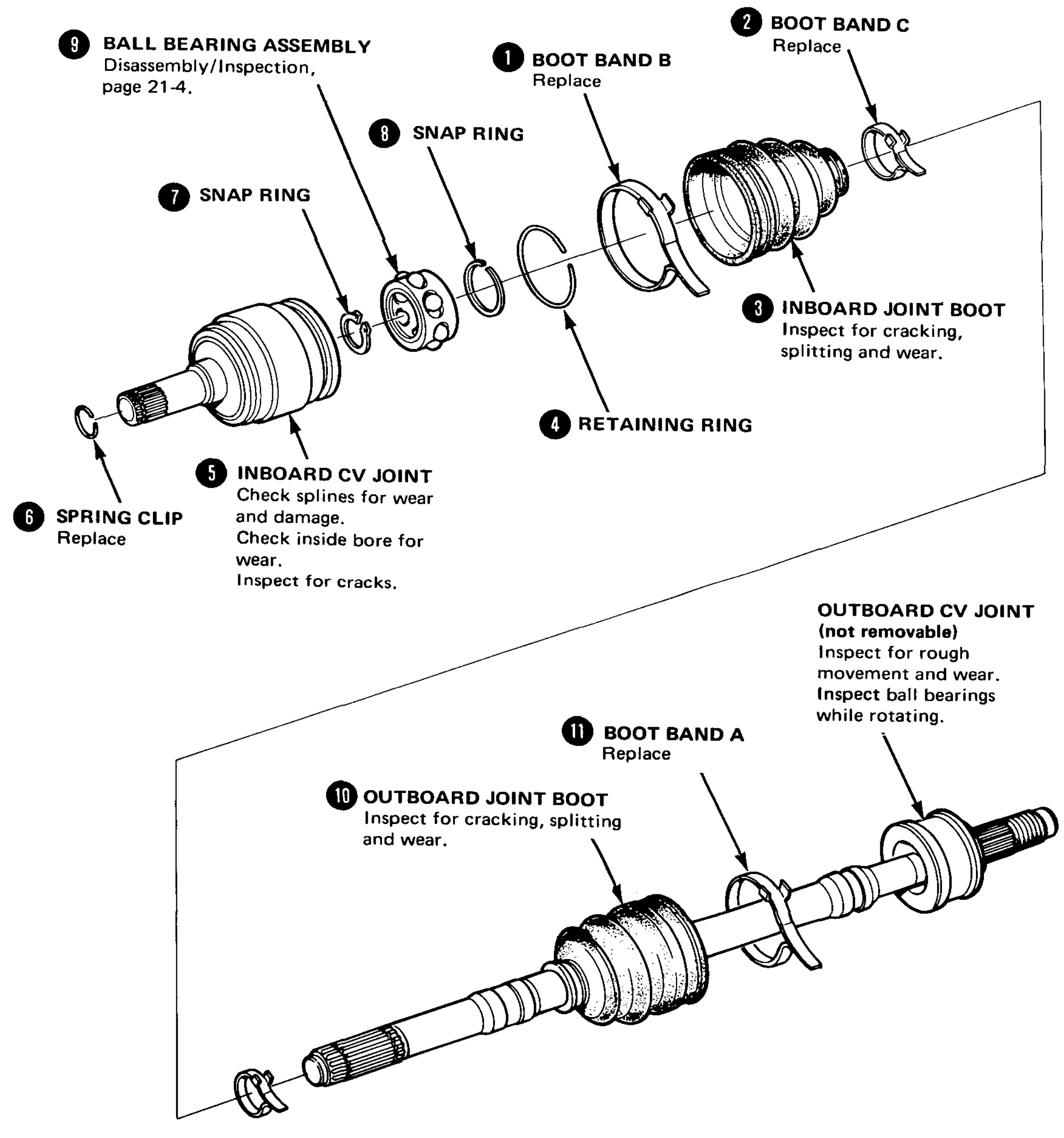
3. Slide the boots into place and install new boot bands C on the small ends.
   Position the bands so they are centered between the locating humps at each end of the driveshaft. Expand and compress the boots until they return to their normal shape and length.



SPRING CLIP
SNAP RING
SNAP RING
BOOT BAND B
Bend both sets of locking tabs.
INBOARD CV JOINT
Pack cavity with grease.
GREASE
BOOT BAND C
Bend both sets of locking tabs.
SPIDER ASSEMBLY
Reinstall in original position.
GREASE
INBOARD JOINT BOOT
Pack cavity with grease.
GREASE
SPIDER
ROLLER
OUTBOARD JOINT BOOT
BOOT BAND A
Bend both sets of locking tabs.
OUTBOARD CV JOINT
Pack cavity with grease.
GREASE

Disassembly/Inspection: Ball type joint

Disassemble in numbered sequence.



❾ **BALL BEARING ASSEMBLY**
Disassembly/Inspection,
page 21-4.

❷ **BOOT BAND C**
Replace

❶ **BOOT BAND B**
Replace

❽ **SNAP RING**

❼ **SNAP RING**

❸ **INBOARD JOINT BOOT**
Inspect for cracking,
splitting and wear.

❹ **RETAINING RING**

❺ **INBOARD CV JOINT**
Check splines for wear
and damage.
Check inside bore for
wear.
Inspect for cracks.

❻ **SPRING CLIP**
Replace

OUTBOARD CV JOINT
(not removable)
Inspect for rough
movement and wear.
Inspect ball bearings
while rotating.

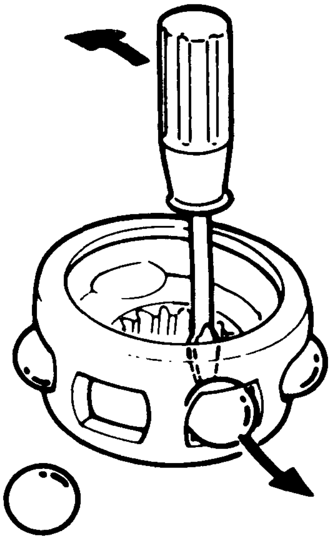
⓫ **BOOT BAND A**
Replace

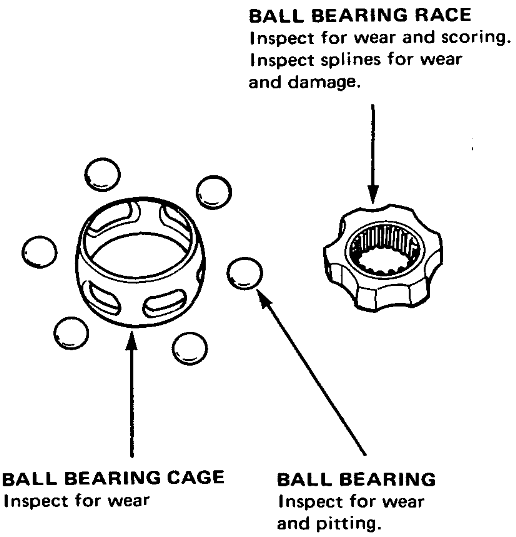
❿ **OUTBOARD JOINT BOOT**
Inspect for cracking, splitting
and wear.

Bearing Disassembly

1. To inspect the inboard CV joint bearing, put it on a bench and disassemble it by gently prying each ball out of the cage with a dull screwdriver.

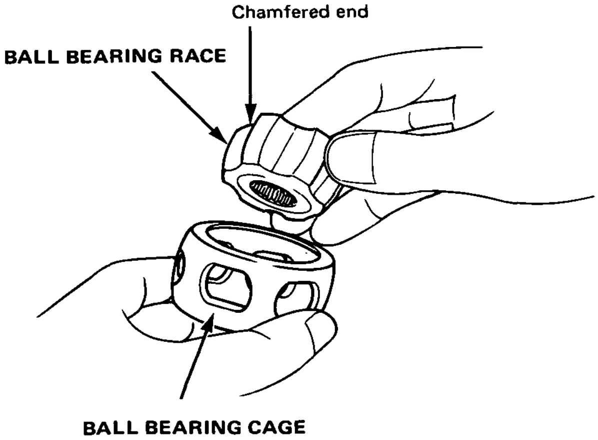
   NOTE: Individual parts for CV joints are not available. The inboard joint is available as a complete assembly; the outboard joint is available only as part of the complete axle assembly.



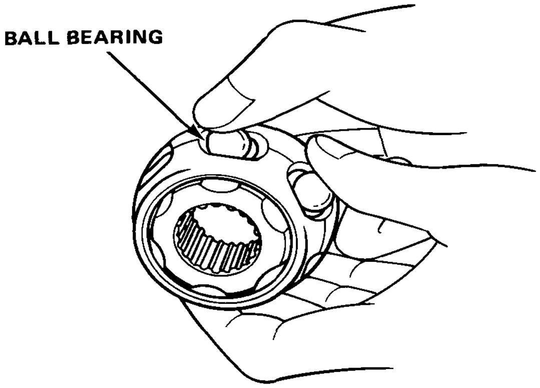

BALL BEARING RACE
Inspect for wear and scoring.
Inspect splines for wear
and damage.
BALL BEARING CAGE
Inspect for wear
BALL BEARING
Inspect for wear
and pitting.

Bearing Reassembly

1. Install ball bearing race with chamfered end towards small end of cage.


Chamfered end
BALL BEARING RACE
BALL BEARING CAGE

2. Press balls in until firmly seated.

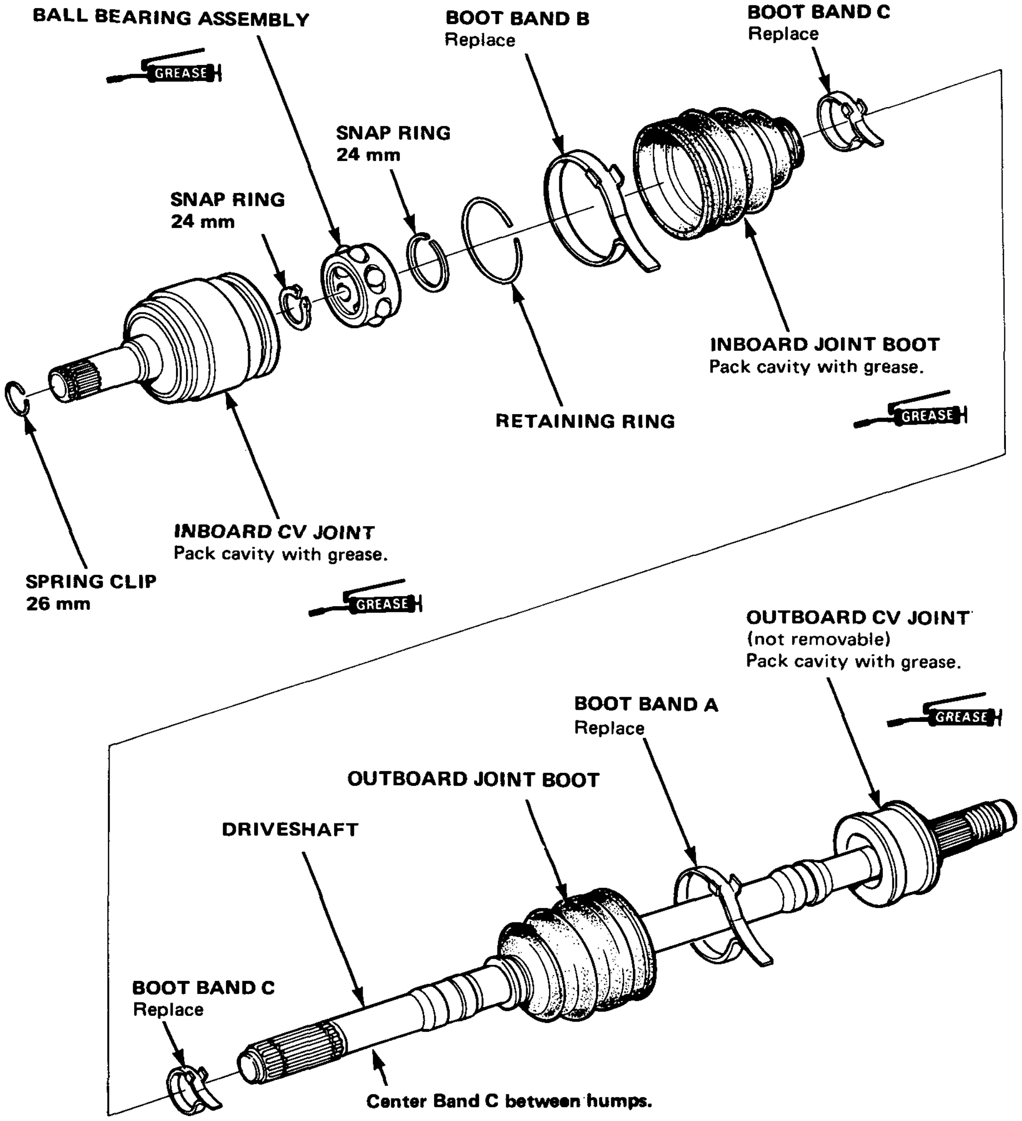

BALL BEARING

Reassembly : Ball type joint

1. Reassemble the driveshafts in reverse order of disassembly.

   GREASE Throughly pack bearings and both inboard and outboard CV joints with high quality molybdenum disulfide grease when reassembling driveshaft.

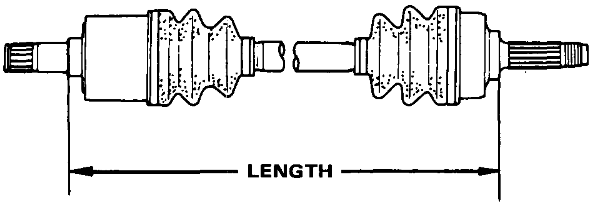
2. Slide boots into place and install new bands on the small ends.
   Position bands so they are centered between locating humps at each end of driveshaft. Expand and compress boots until they return to their normal shape and length.


BALL BEARING ASSEMBLY
GREASE
BOOT BAND B
Replace
BOOT BAND C
Replace
SNAP RING
24 mm
SNAP RING
24 mm
INBOARD JOINT BOOT
Pack cavity with grease.
GREASE
RETAINING RING
INBOARD CV JOINT
Pack cavity with grease.
GREASE
SPRING CLIP
26 mm
OUTBOARD CV JOINT
(not removable)
Pack cavity with grease.
GREASE
BOOT BAND A
Replace
OUTBOARD JOINT BOOT
DRIVESHAFT
BOOT BAND C
Replace
Center Band C between humps.

(cont'd)

Reassembly : Ball type joint

3. Adjust the length of the driveshafts to the figures given below.

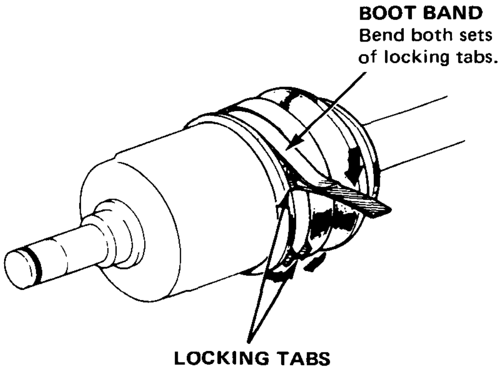


LEFT DRIVESHAFT:
771.0–776.0 mm (30.354–30.551 in)
RIGHT DRIVESHAFT:
471.0–476.0 mm (18.543–18.740 in)

4. Install the new boot bands A and B on the boots.

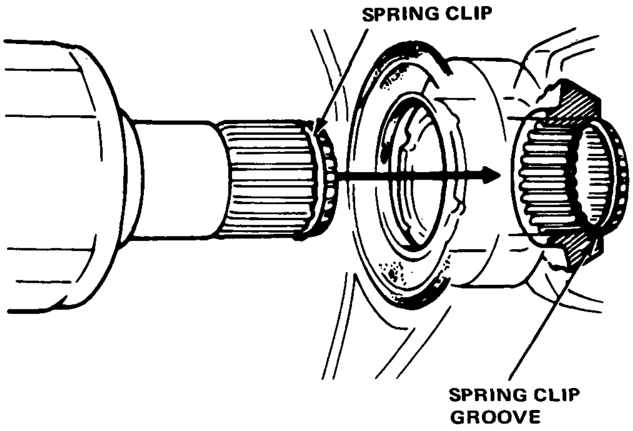
NOTE:
- Be sure to bend both sets of the locking tabs.
- Lightly tap on the doubled-over portions to reduce their height.

CAUTION: Do not strike the boot.


BOOT BAND
Bend both sets of locking tabs.
LOCKING TABS

5. Installation inboard end of the driveshaft.

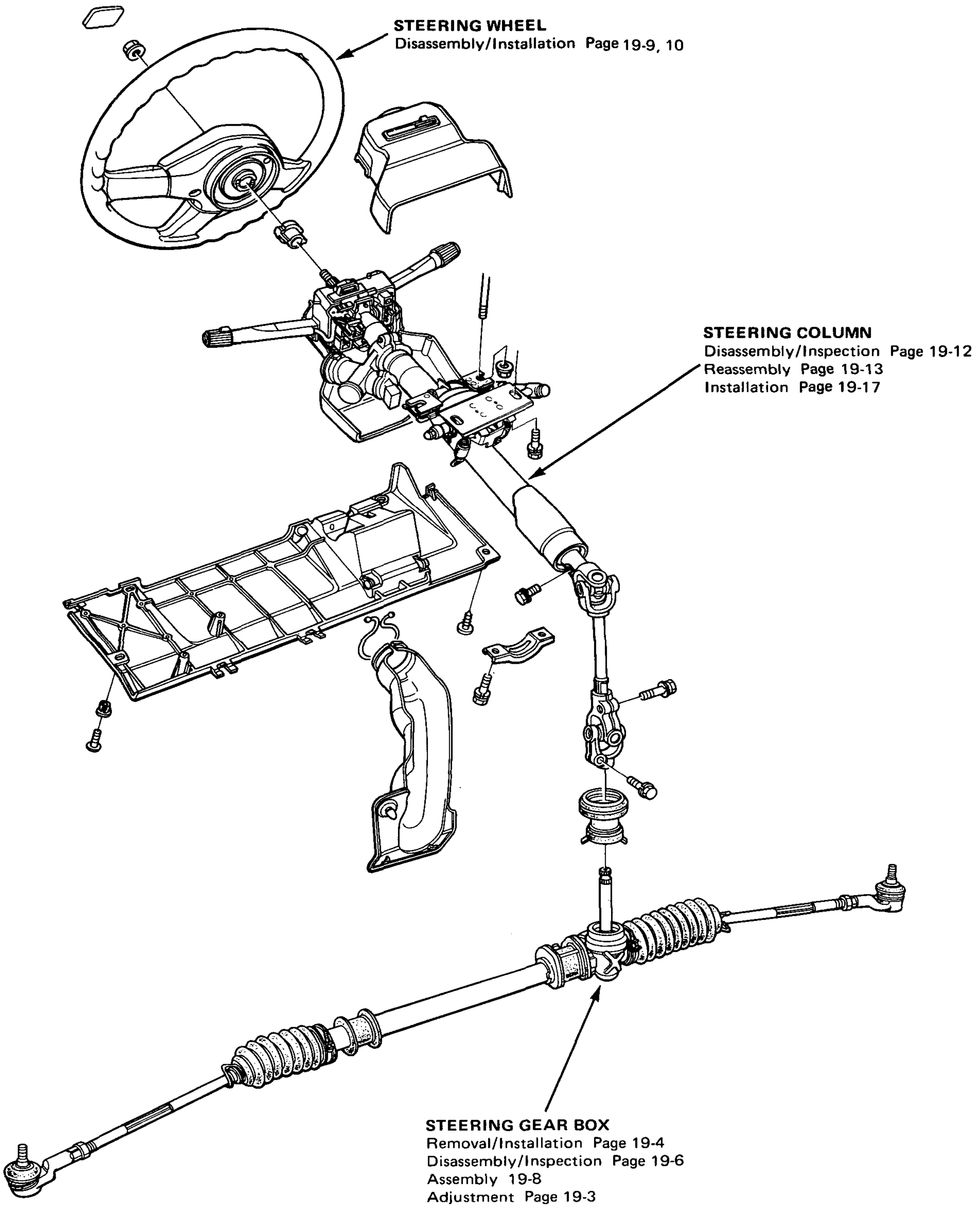
CAUTION:
- **When reinstalling, make sure that the CV joint subaxle bottoms in the differential and that the spring clip locks in differential side gear groove.**
- **Replace the spring clip with a new one whenever the driveshaft is disassembled.**


SPRING CLIP
SPRING CLIP GROOVE

6. Add the transmission oil.
Use only SAE30, 10W-30, 10W-40 or 20W-40 weight oil, grade SE or SF. (Page 14-2)

Index

NOTE: The tilt steering column is shown; the conventional steering column is similar except for the tilt mechanism.



STEERING WHEEL
Disassembly/Installation Page 19-9, 10

STEERING COLUMN
Disassembly/Inspection Page 19-12
Reassembly Page 19-13
Installation Page 19-17

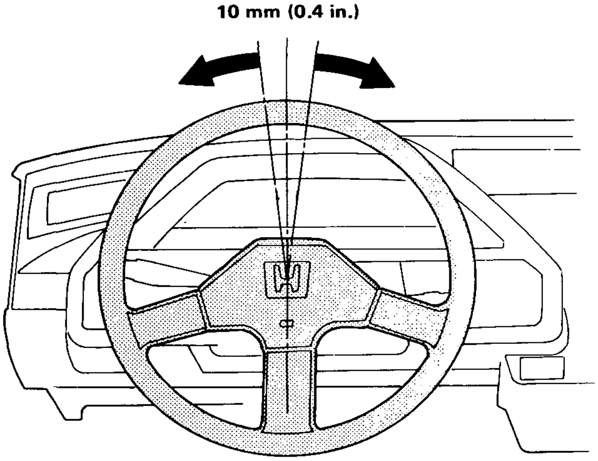
STEERING GEAR BOX
Removal/Installation Page 19-4
Disassembly/Inspection Page 19-6
Assembly 19-8
Adjustment Page 19-3

Inspection

Steering Wheel Rotational Play

1. Place the front wheels in a straight ahead position and measure the distance the steering wheel can be turned without moving the front wheels.
2. If the play exceeds the service limit, check all steering components.

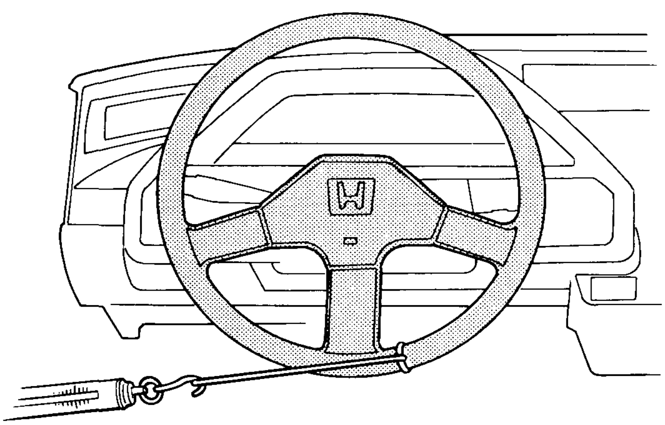
Service Limit: 10 mm (0.4 in.)



Steering Effort Check

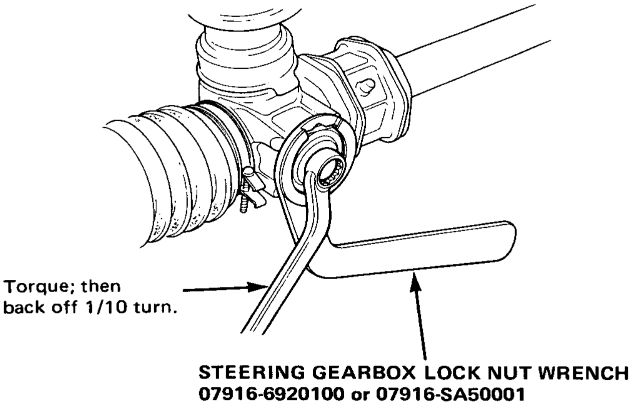
1. Raise the front wheels off the ground.
2. Turn the steering wheel with a spring gauge and check its reading.
3. If the reading exceeds the service limit, adjust the steering gearbox as shown below.

Service Limit: 15 N (1.5 kg, 3.3 lbs)



Steering Gearbox Adjustment

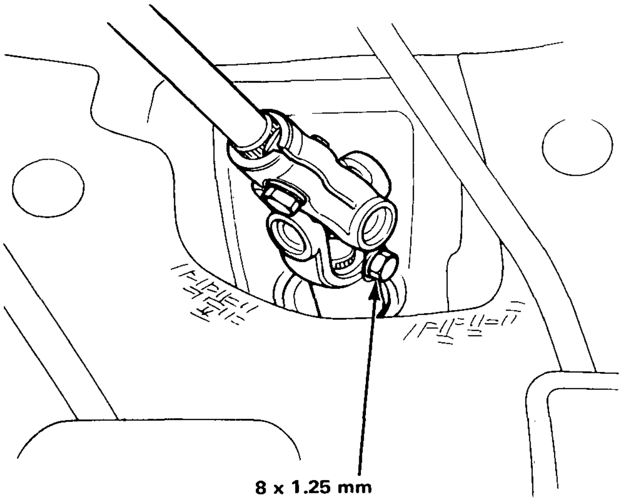
1. Loosen the rack screw locknut.
2. Torque the rack guide screw to 4 N·m (0.4 kg-m, 3 lb-ft).
3. Back off the screw approximately 1/10 of a turn from the bottomed (torqued) position and tighten the lock nut to 25 N-m (2.5 kg-m, 18 lb-ft).
4. Check for tight or loose steering through the complete turning travel.
5. Recheck steering effort as shown above.


Torque; then
back off 1/10 turn.
STEERING GEARBOX LOCK NUT WRENCH
07916-6920100 or 07916-SA50001

Gearbox

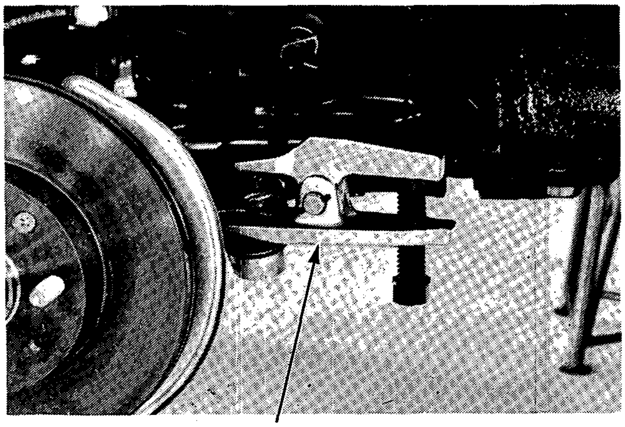
Removal/Installation

1. Remove the bottom bolt in the steering shaft connector, and pull the connector up off the pinion shaft.



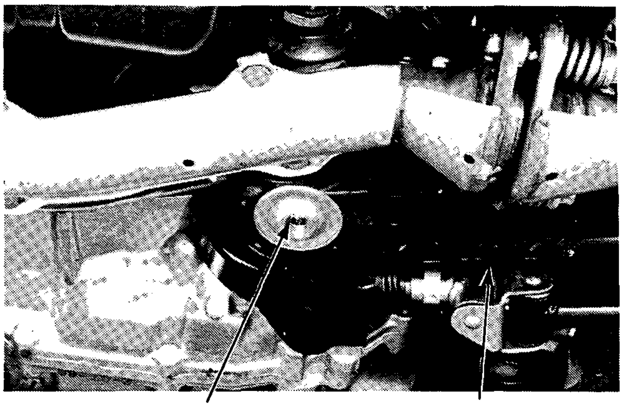
8 x 1.25 mm
30 N·m (3.0 kg-m, 22 lb-ft)

2. Raise the front of car on jack stands and remove the front wheels.
3. Remove the cotter pins, and unscrew the tie-rod end ball joint nuts halfway.
4. Break the ball joints loose using the Ball Joint Remover.
5. Then remove the nuts, and lift the tie-rod ends out of the steering knuckles.



BALL JOINT REMOVER
07941-6920001

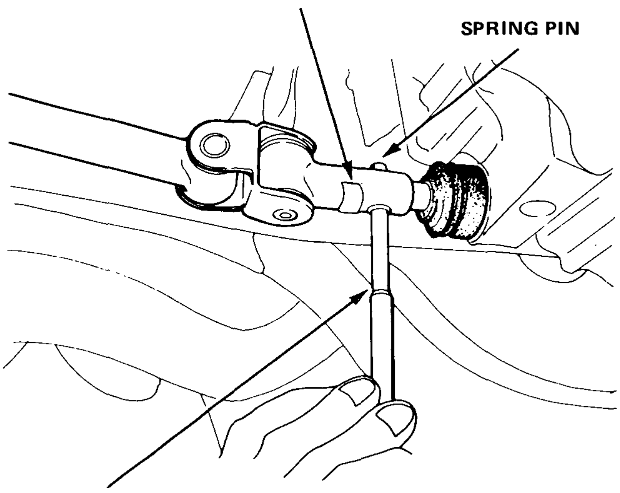
6. Manual Transmission Only:
   - Disconnect the shift lever torque rod from the clutch housing.



6 x 10 mm
10 N·m (1.0 kg-m, 7 lb-ft)

SHIFT LEVER TORQUE ROD

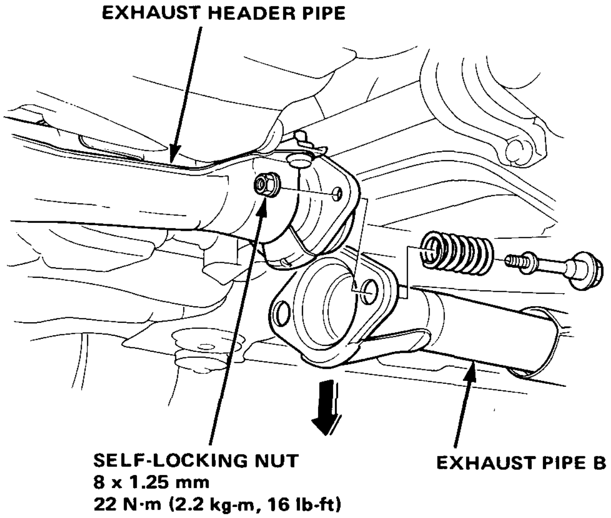
   - Slide pin retainer out of way, drive out spring pin with punch, then disconnect shift rod.



NOTE: On reassembly, slide retainer back into place after driving in spring pin.

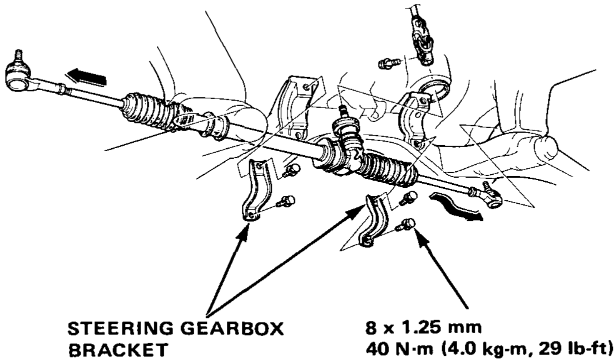
7. Automatic Transmission Only:
   Remove the shift cable guide from the floor and pull the shift cable down by hand.

8. Remove the self-locking nuts (two) connecting the exhaust header pipe to exhaust pipe B, then pull exhaust pipe B down by hand.


EXHAUST HEADER PIPE
SELF-LOCKING NUT
8 x 1.25 mm
22 N·m (2.2 kg-m, 16 lb-ft)
EXHAUST PIPE B

9. Push the rack all the way to the right (simulate a left turn), then remove the gearbox brackets.

   Drop the gearbox far enough so the end of the pinion shaft comes out of its hole in the frame channel, then rotate it forward until the shaft is pointing to the rear.
   Slide the gearbox to the right until the left tie-rod clears the exhaust pipe, then drop it down and out of the car to the left.

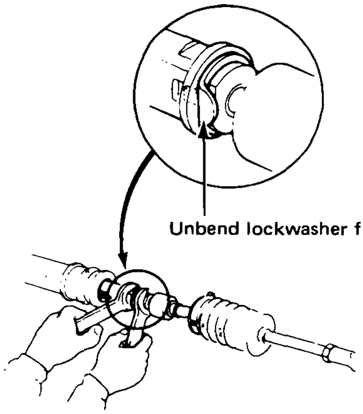

STEERING GEARBOX
BRACKET
8 x 1.25 mm
40 N·m (4.0 kg-m, 29 lb-ft)

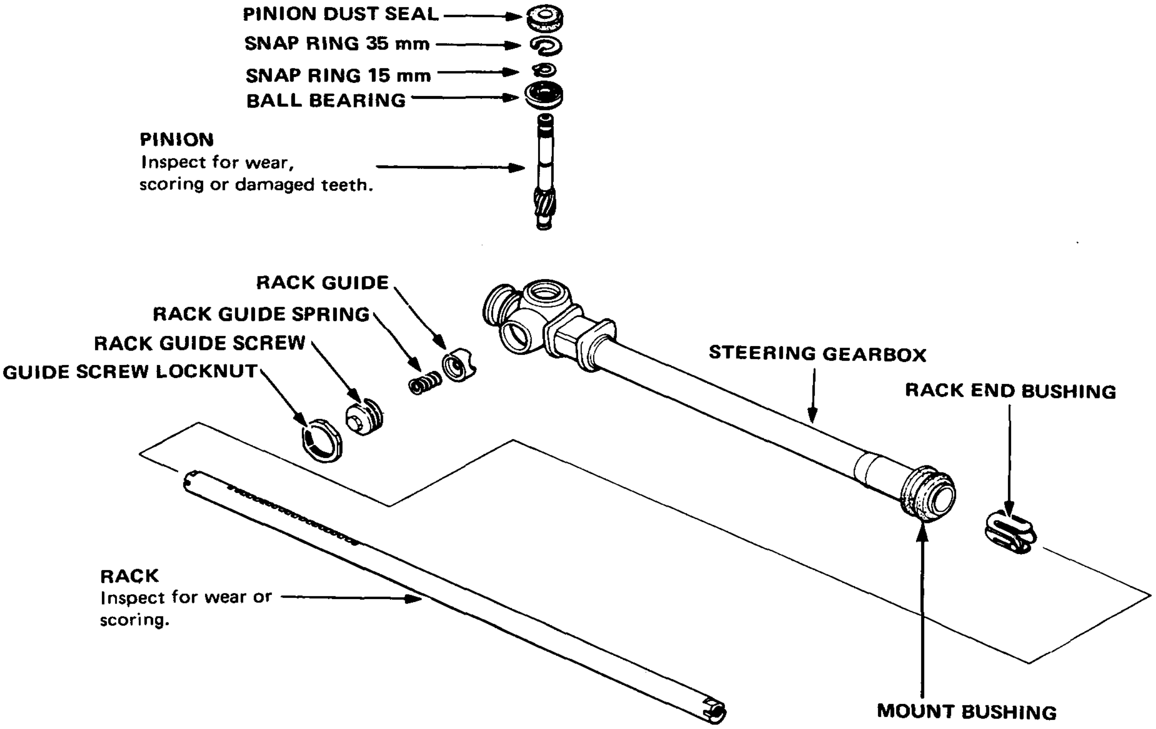
10. Gearbox installation is in the reverse order of removal.

Gearbox

Disassembly/Inspection

1. Carefully clamp the gearbox in a vise.
2. Loosen the bands, then pull the boots away from the ends of the gearbox and unbend the tie-rod lockwashers.
3. Hold the rack with a 21 mm wrench and unscrew the tie-rods with a 17 mm wrench.
4. Remove the rack guide components from the gearbox.


Unbend lockwasher first.

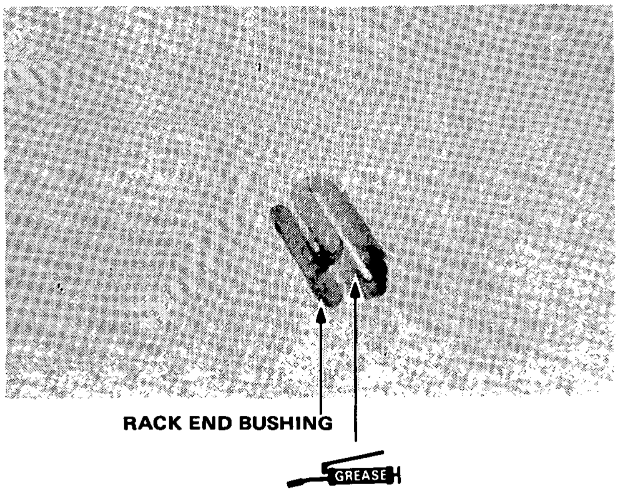

PINION DUST SEAL
SNAP RING 35 mm
SNAP RING 15 mm
BALL BEARING
PINION
Inspect for wear, scoring or damaged teeth.
RACK GUIDE
RACK GUIDE SPRING
RACK GUIDE SCREW
GUIDE SCREW LOCKNUT
STEERING GEARBOX
RACK END BUSHING
RACK
Inspect for wear or scoring.
MOUNT BUSHING

5. Remove the pinion boot, pinion dust seal, and 35 mm snap ring, then pull the pinion out of the gearbox.
6. Slide the rack out of the gearbox.

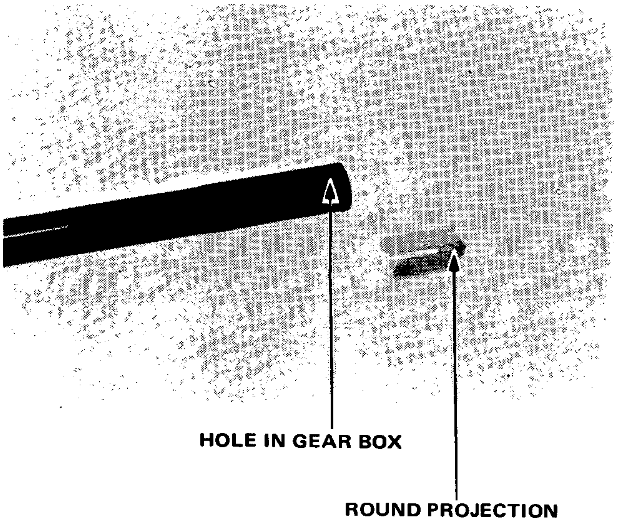
Rack End Bushing Installation

1. Apply a thin coat of grease to the inside surface of the rack end bushing.

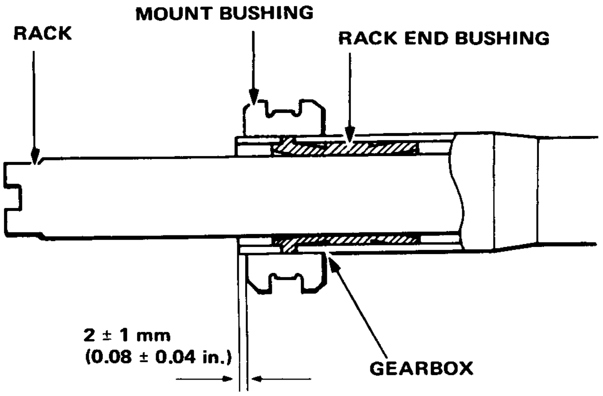
   CAUTION: Do not fill the slots with grease; they must remain open to serve as air passages.


RACK END BUSHING
GREASE

2. Install the rack end bushing by aligning the round projections on the bushing with the holes in the gearbox.


HOLE IN GEAR BOX
ROUND PROJECTION

3. Slide the mount bushing onto the gearbox as shown.

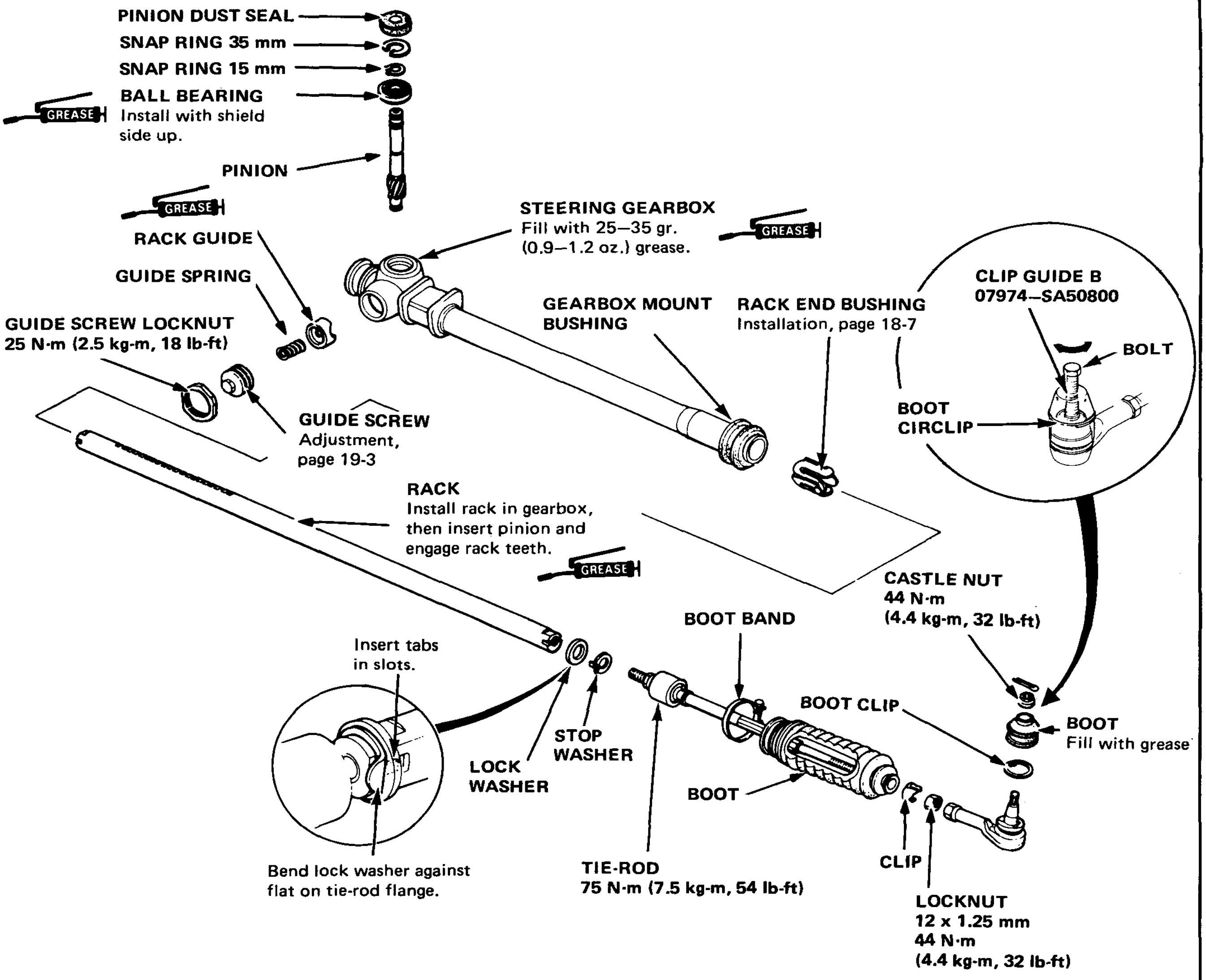

MOUNT BUSHING
RACK
RACK END BUSHING
2 ± 1 mm
(0.08 ± 0.04 in.)
GEARBOX

Gearbox

Reassembly

Reassemble the gearbox in the reverse order of disassembly, then:

1. Put a new lockwasher and stop washer on both tie-rods.
2. Screw each tie-rod into the rack while holding the stop washer so the tabs are in the slots in the rack end. Tighten the tie-rod securely, then bend a lockwasher back against the flat on the flange as shown.
3. Install the boots and secure with the bands.
4. Pack the tie-rod ends with grease, then install on the tie-rods. Do not tighten the locknuts until after tie-rod adjustment (page 20-3).
5. Fill the tie-rod end boots with grease and install as shown; replace boots that are cut or split.
6. Bleed air from the boots by gently squeezing them from the bottom up.
7. Reinstall the gearbox (page 19-4).
8. Adjust the gearbox (page 19-3).



PINION DUST SEAL
SNAP RING 35 mm
SNAP RING 15 mm
GREASE
BALL BEARING
Install with shield side up.
PINION
GREASE
RACK GUIDE
GUIDE SPRING
GUIDE SCREW LOCKNUT
25 N·m (2.5 kg-m, 18 lb-ft)
STEERING GEARBOX
Fill with 25—35 gr. (0.9—1.2 oz.) grease.
GREASE
GEARBOX MOUNT BUSHING
RACK END BUSHING
Installation, page 18-7
CLIP GUIDE B
07974—SA50800
BOLT
BOOT CIRCLIP
GUIDE SCREW
Adjustment, page 19-3
RACK
Install rack in gearbox, then insert pinion and engage rack teeth.
GREASE
CASTLE NUT
44 N·m
(4.4 kg-m, 32 lb-ft)
BOOT BAND
Insert tabs in slots.
BOOT CLIP
BOOT
Fill with grease
STOP WASHER
LOCK WASHER
BOOT
Bend lock washer against flat on tie-rod flange.
TIE-ROD
75 N·m (7.5 kg-m, 54 lb-ft)
CLIP
LOCKNUT
12 x 1.25 mm
44 N·m
(4.4 kg-m, 32 lb-ft)

Steering Wheel

Disassembly/Reassembly

Removal

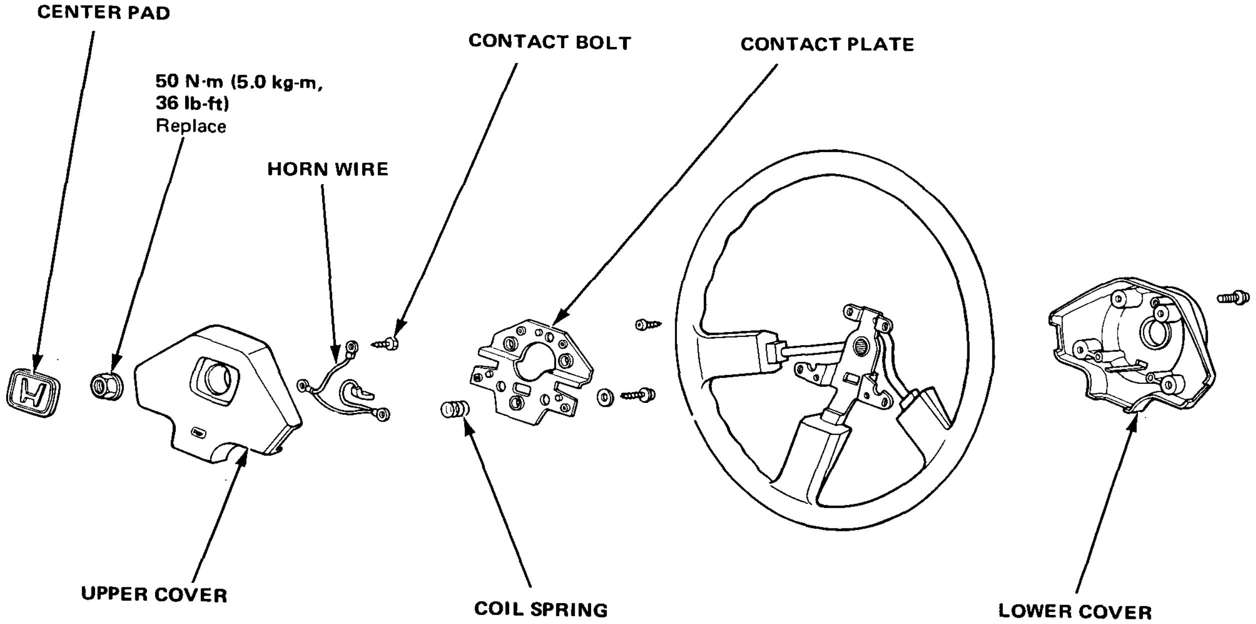
1. Remove the center pad.
2. Remove the steering shaft nut.
3. Remove the steering wheel by rocking it slightly side-to-side as you pull steadily with both hands.

Disassembly

1. Remove the upper and lower covers.
2. Remove the contact plate. Check the contact points and repair if necessary.

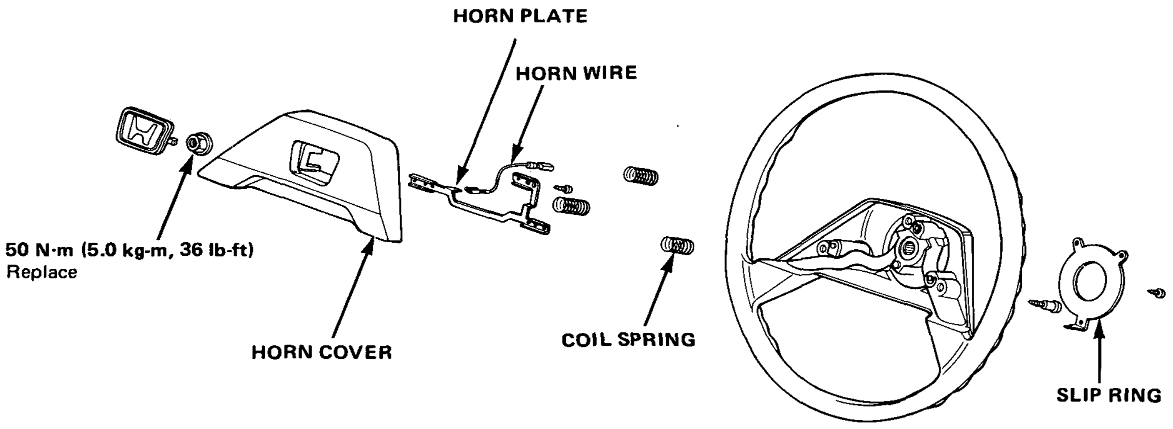
Reassembly

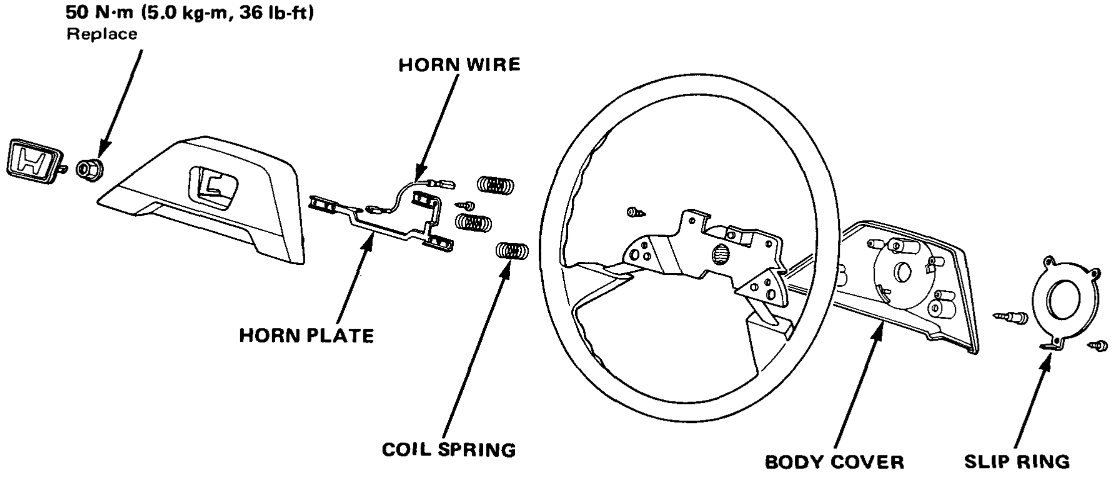
1. Adjust the clearance between the coil springs and the contact face to 1.0-1.5 mm (0.04-0.06 in.)
2. Clean the contact plate points.
3. Install the upper and lower covers.
4. Turn the front wheels to a straight ahead position.
5. Install the steering wheel in a straight ahead position.
6. Tighten the steering wheel mount nut and torque to 50 N·m (5.0 kg-m, 36 lb-ft).
7. Check that the horn works properly, then install the center pad.


CENTER PAD
CONTACT BOLT
CONTACT PLATE
50 N·m (5.0 kg-m, 36 lb-ft)
Replace
HORN WIRE
UPPER COVER
COIL SPRING
LOWER COVER

Steering Wheel

Disassembly/Reassembly


HORN PLATE
HORN WIRE
50 N·m (5.0 kg-m, 36 lb-ft)
Replace
HORN COVER
COIL SPRING
SLIP RING

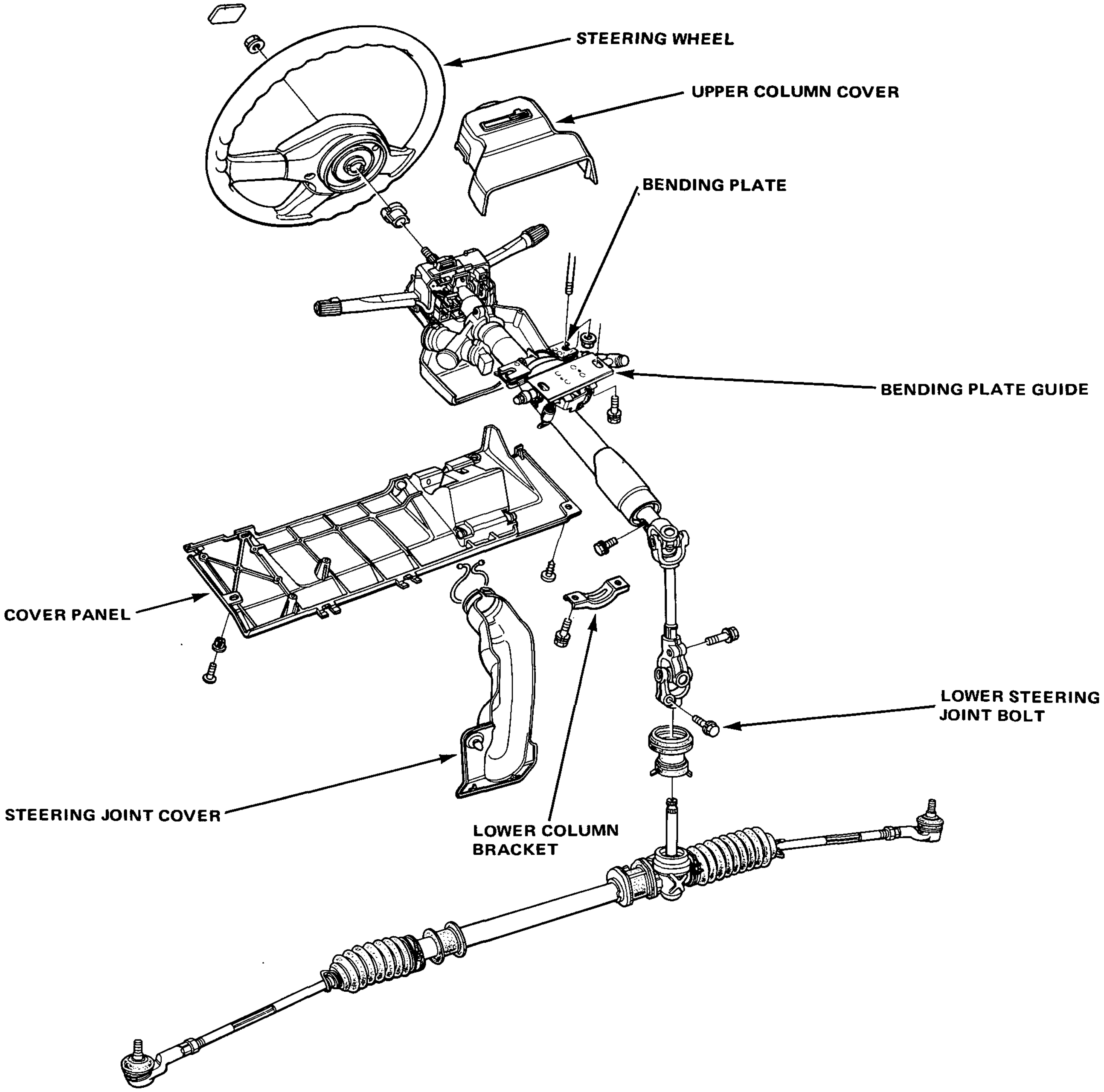

50 N·m (5.0 kg-m, 36 lb-ft)
Replace
HORN WIRE
HORN PLATE
COIL SPRING
BODY COVER
SLIP RING

Column

Removal

1. Remove the steering wheel.
2. Remove the cover panel.
3. Remove the steering joint cover.
4. Remove the lower steering joint bolt.
5. Remove the lower column bracket.
6. Remove the nuts attaching the bending plate guide and bending plate.
7. Remove the upper column cover and disconnect each wire coupler.
8. Remove the steering column assembly.

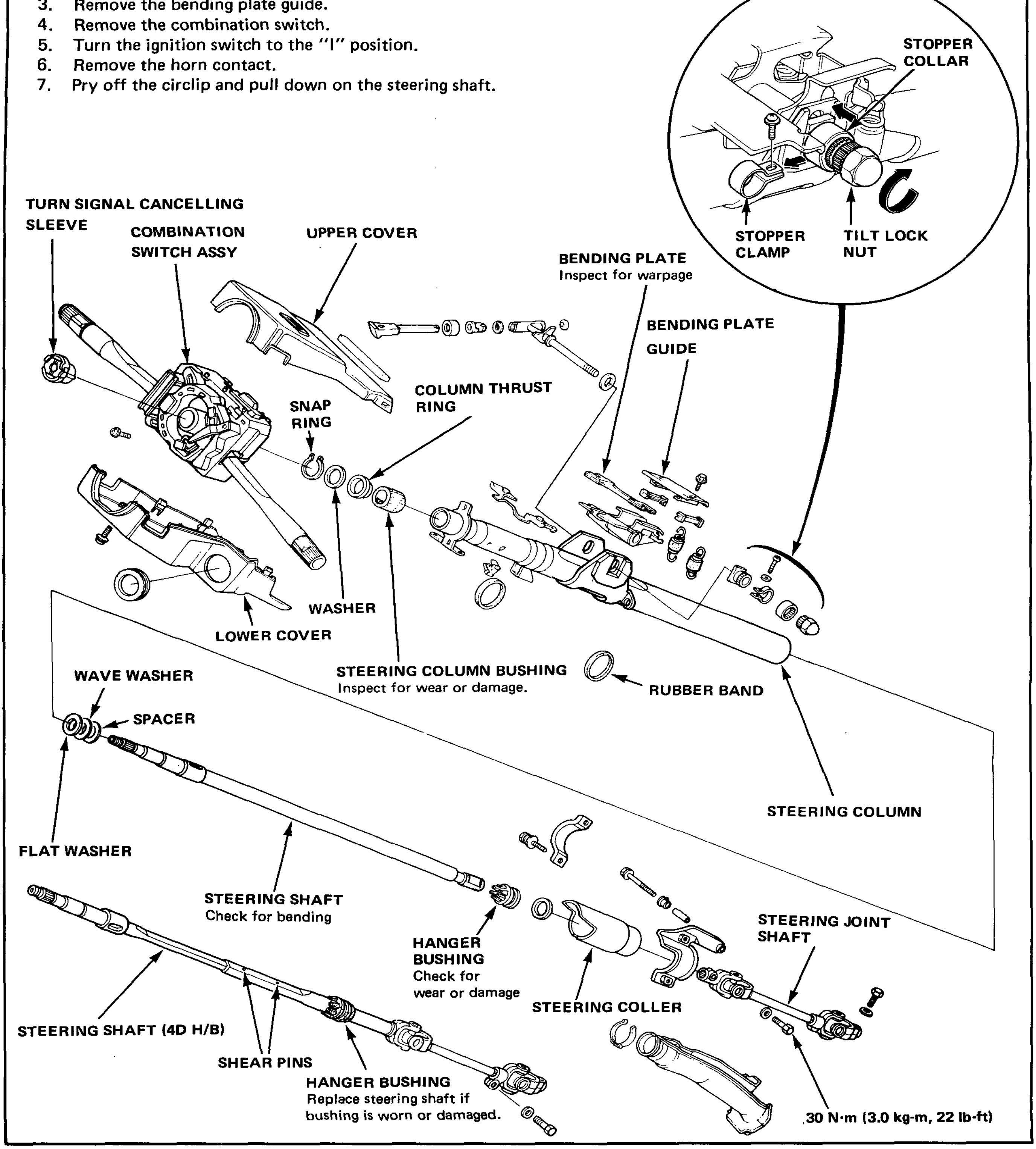
NOTE: The tilt steering column is shown; the conventional steering column is similar except for the tilt mechanism.


STEERING WHEEL
UPPER COLUMN COVER
BENDING PLATE
BENDING PLATE GUIDE
COVER PANEL
LOWER STEERING JOINT BOLT
STEERING JOINT COVER
LOWER COLUMN BRACKET

Column

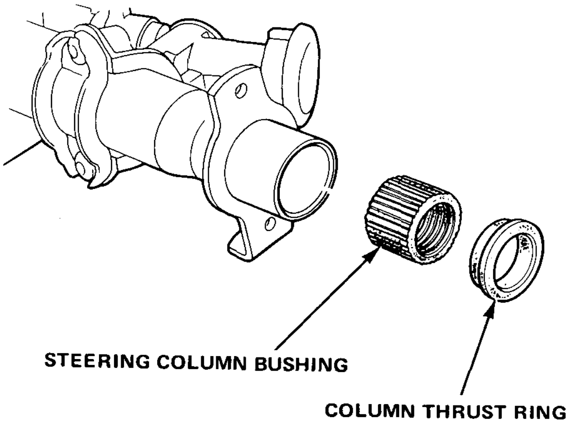
Disassembly/Inspection

1. Remove the turn signal cancelling sleeve.
2. Remove the rubber band, then remove the upper column holder and bending plate.
3. Remove the bending plate guide.
4. Remove the combination switch.
5. Turn the ignition switch to the "I" position.
6. Remove the horn contact.
7. Pry off the circlip and pull down on the steering shaft.

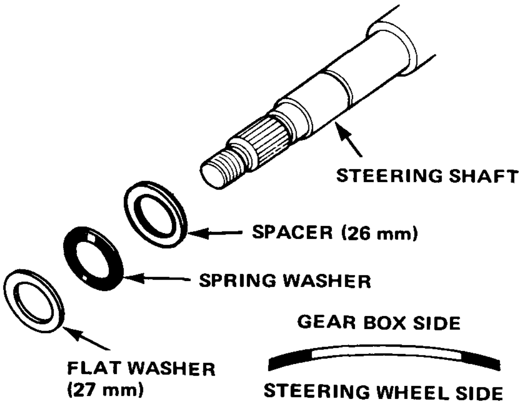

STOPPER COLLAR
STOPPER CLAMP
TILT LOCK NUT
TURN SIGNAL CANCELLING SLEEVE
COMBINATION SWITCH ASSY
UPPER COVER
BENDING PLATE
Inspect for warpage
BENDING PLATE GUIDE
COLUMN THRUST RING
SNAP RING
WASHER
LOWER COVER
STEERING COLUMN BUSHING
Inspect for wear or damage.
RUBBER BAND
WAVE WASHER
SPACER
STEERING COLUMN
FLAT WASHER
STEERING SHAFT
Check for bending
HANGER BUSHING
Check for wear or damage
STEERING JOINT SHAFT
STEERING COLLER
STEERING SHAFT (4D H/B)
SHEAR PINS
HANGER BUSHING
Replace steering shaft if bushing is worn or damaged.
30 N·m (3.0 kg-m, 22 lb-ft)

Reassmbly

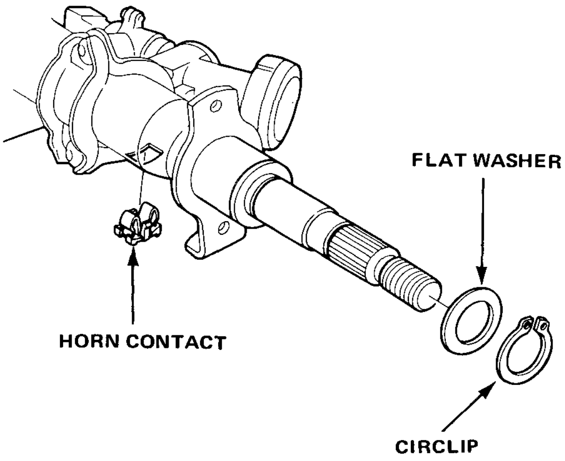
1. Insert the column bushing.
2. Set the steering thrust ring in position.


STEERING COLUMN BUSHING
COLUMN THRUST RING

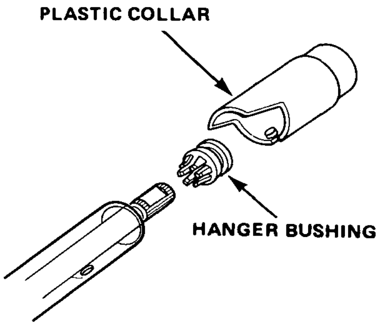
3. Apply grease to the column bushing and its thrust ring.
4. Coat the steering shaft with rest-preventive oil.
5. Install the spacer, spring washer, and flat washer on the end of the steering shaft.


STEERING SHAFT
SPACER (26 mm)
SPRING WASHER
GEAR BOX SIDE
FLAT WASHER
(27 mm)
STEERING WHEEL SIDE

6. Carefully insert the steering shaft in the steering column from the bottom.
7. Install the retaining washer and snap ring on the steering shaft.
8. Install the horn contact.


FLAT WASHER
HORN CONTACT
CIRCLIP

9. Apply grease to the lower end of the steering shaft and inside of the column.
10. Push the hanger bushing into the bottom end of the column as far as it will go.

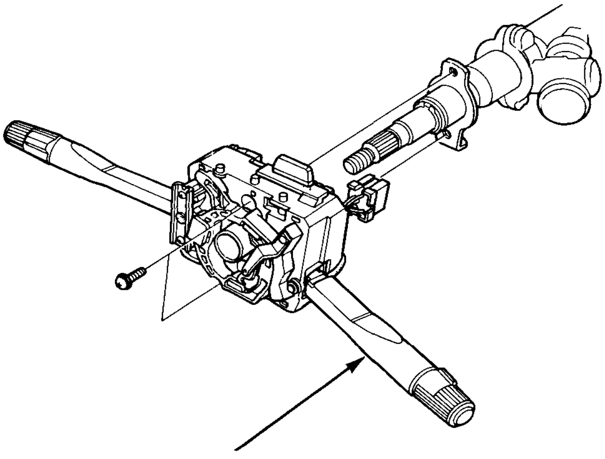

PLASTIC COLLAR
HANGER BUSHING

11. Install the plastic collar over the bottom end of the steering column by aligning the round projection inside the collar with the hole in the column.

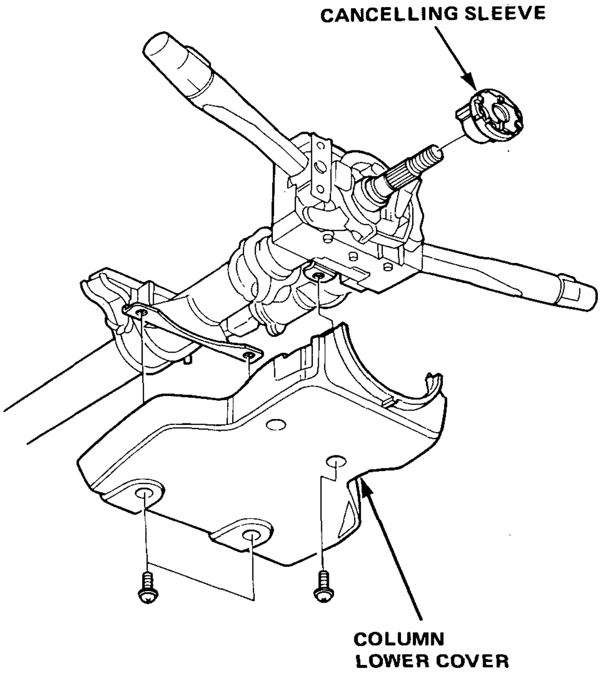
(cont'd)

Reassembly (cont'd)

12. Install the combination switch assembly.

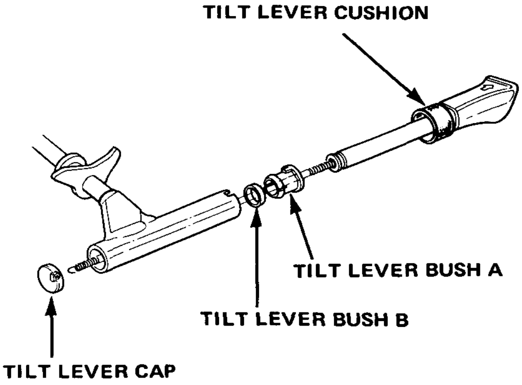

COMBINATION SWITCH ASSEMBLY

13. Install the turn signal switch (4 screws) and turn signal cancelling sleeve.


CANCELLING SLEEVE
COLUMN
LOWER COVER

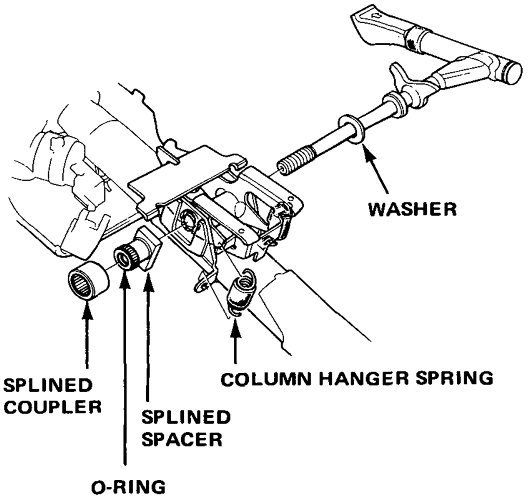
14. Install the column upper cover and lower cover.

15. If applicable, assemble the tilt lever.


TILT LEVER CUSHION
TILT LEVER BUSH A
TILT LEVER BUSH B
TILT LEVER CAP

16. Position the bending plate on the steering column; if applicable insert the tilt lever shaft into the column with the washer as shown.

NOTE: Coat sliding surfaces with clean grease.


WASHER
SPLINED
COUPLER
COLUMN HANGER SPRING
SPLINED
SPACER
O-RING

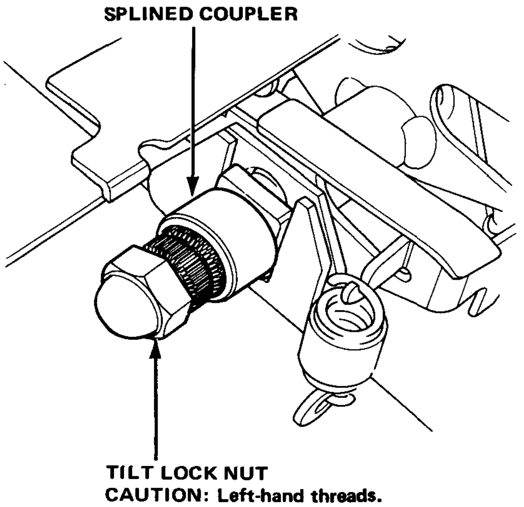
17. If applicable, install the splined spacer on the tilt shaft.

NOTE: Avoid damaging the O-ring.

18. Slide the splined coupler onto the splined spacer.

19. Install the column hanger spring.

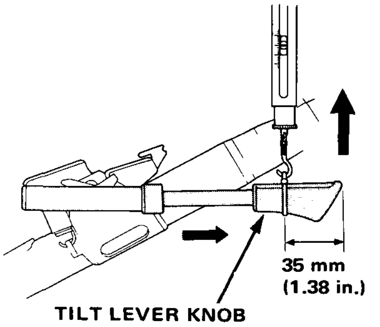
20. If applicable, tighten the tilt lock nut to 7 N·m (0.7 kg-m, 5 lb-ft) then slide the splined coupler toward the tilt lock nut until it stops.


SPLINED COUPLER
TILT LOCK NUT
CAUTION: Left-hand threads.

NOTE: To align the splines on the locknut and the spacer, turn the tilt shaft slightly.

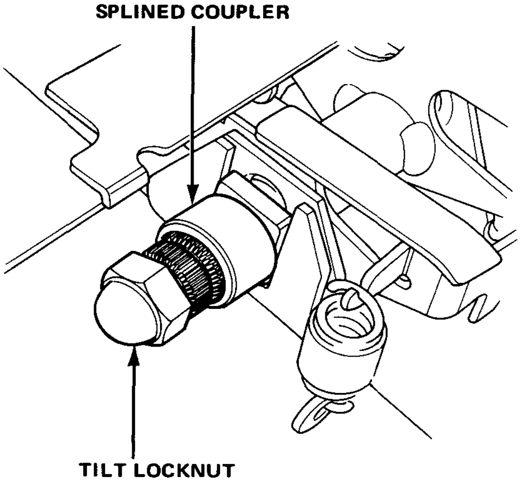
21. If applicable, pull the tilt lever knob out fully and measure the force required to move the lever.
Attach the spring scale 35 mm (1.38 in) from the end of the knob.

OPERATING FORCE: 5.9–9.0 kg (11–20 lbs)


35 mm
(1.38 in.)
TILT LEVER KNOB

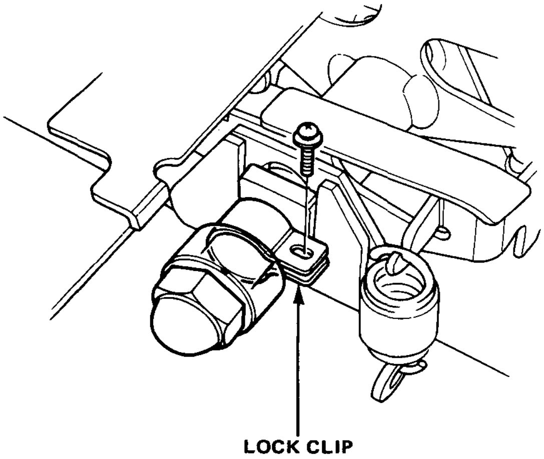
22. If the force measured does not fall within the specification, slide the splined coupler toward the splined spacer, and tighten or loosen the tilt locknut until the correct force is obtained.

NOTE: Turning the locknut counterclockwise will increase the force required.


SPLINED COUPLER
TILT LOCKNUT

23. Slide the splined coupler toward the tilt locknut.

24. Install the lock clip.

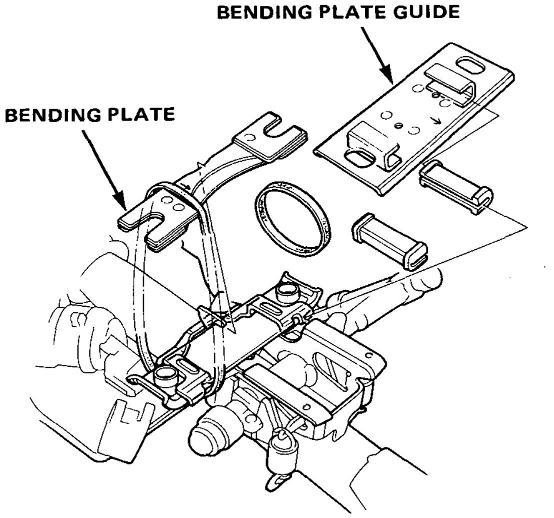


(cont'd)

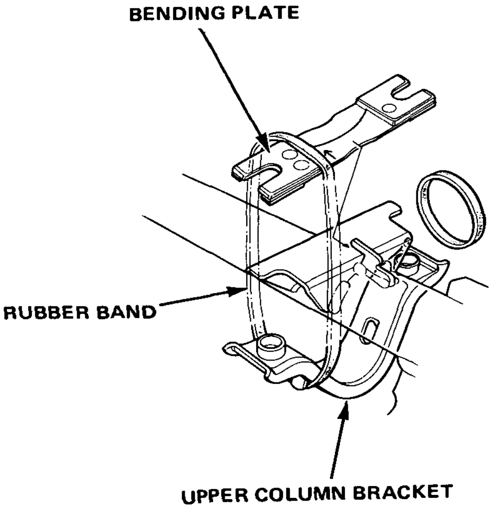
Reassembly (cont'd)

25. Install the bending plate guide. Secure the upper column holder and bending plate with the rubber bands. (Tilt steering column)

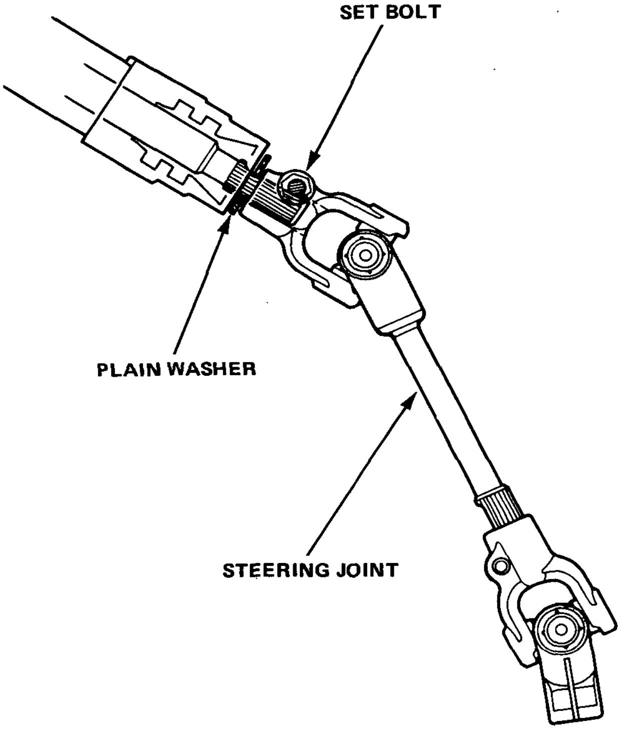
    NOTE: Install the bending plate and plate guide with the arrows facing toward the steering gearbox.


BENDING PLATE GUIDE
BENDING PLATE

- Install the upper column bracket, bending plate and rubber bands. (Conventional steering column)

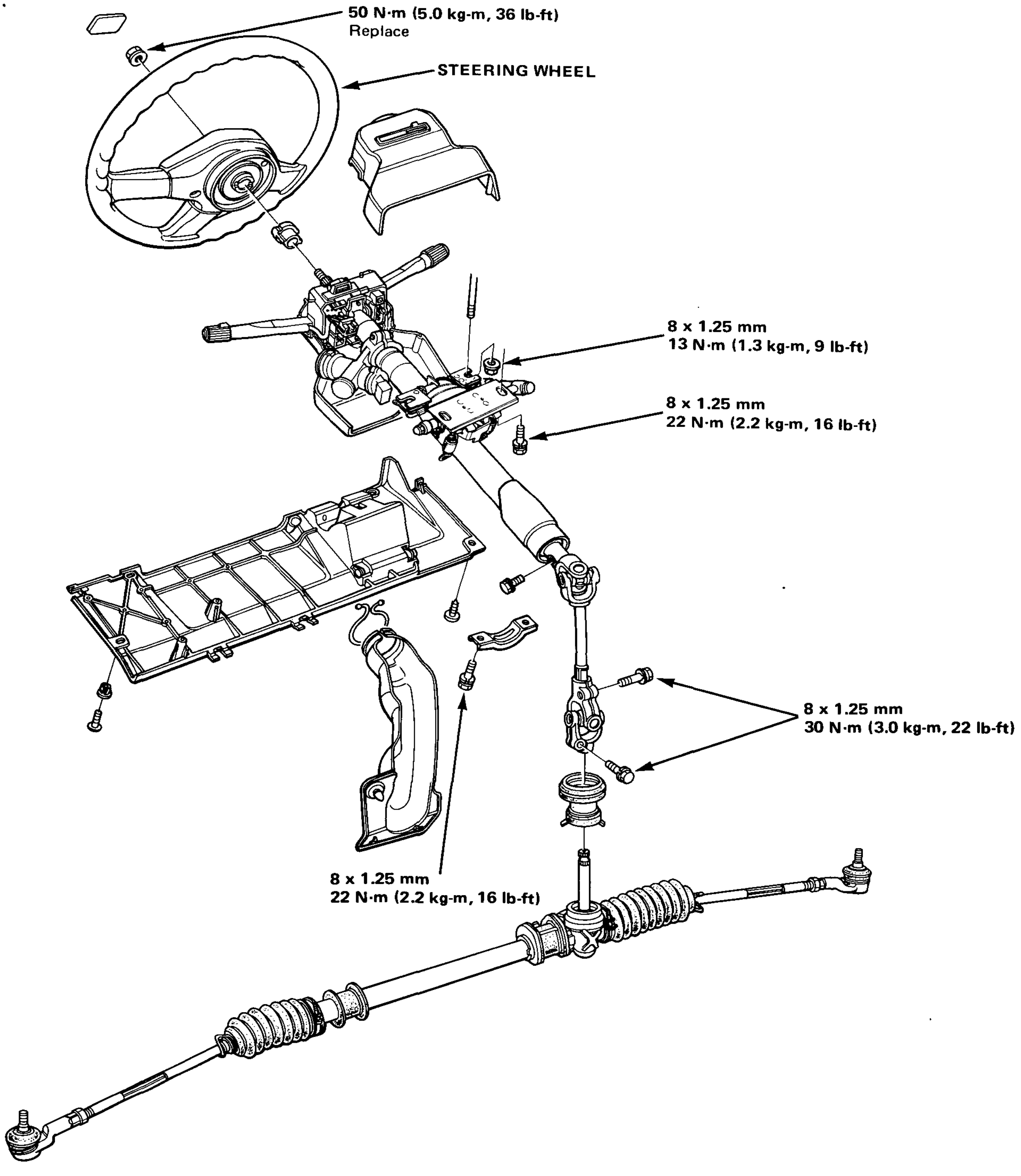

BENDING PLATE
RUBBER BAND
UPPER COLUMN BRACKET

26. Slide the plain washer and steering joint onto the steering shaft aligning the cutout in the shaft with the hole in the joint. Insert the set bolt through the hole, pull the joint as far down as possible, and temporarily tighten the bolt (except for 4D H/B).


SET BOLT
PLAIN WASHER
STEERING JOINT

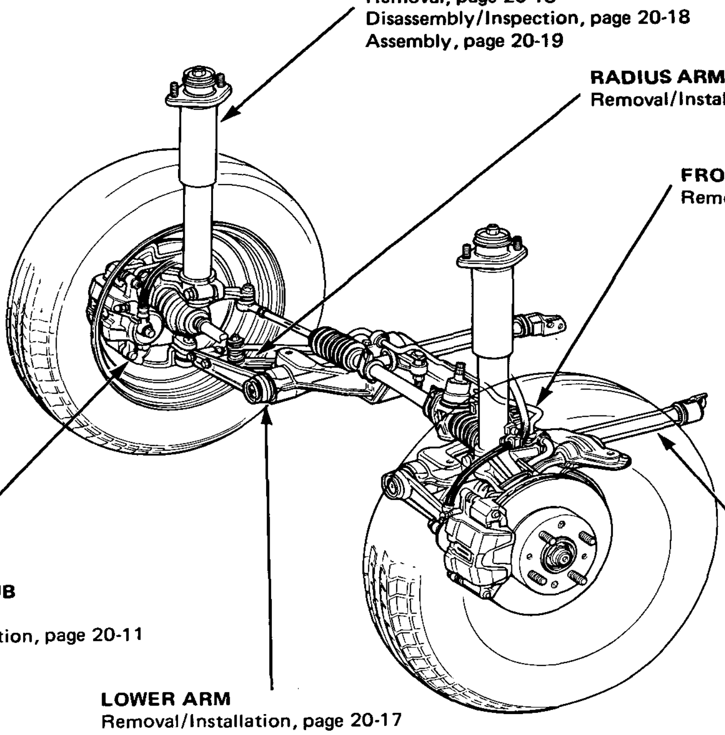
Installation

1. Slide the steering joint onto the steering pinion and loosely install the mount bolt.
2. Reconnect the wire couplers.
3. Install the column upper cover.
4. Insert the frame studs into the holes of the bending plate guide and plate and secure with the mount nuts.
5. Tighten the steering joint lower bolt.
6. Tighten the steering joint upper bolt.
7. Install the cover panel.
8. Install the steering wheel.


50 N·m (5.0 kg-m, 36 lb-ft)
Replace
STEERING WHEEL
8 x 1.25 mm
13 N·m (1.3 kg-m, 9 lb-ft)
8 x 1.25 mm
22 N·m (2.2 kg-m, 16 lb-ft)
8 x 1.25 mm
30 N·m (3.0 kg-m, 22 lb-ft)
8 x 1.25 mm
22 N·m (2.2 kg-m, 16 lb-ft)

Suspension

Index



FRONT WHEEL ALIGNMENT
Inspection/adjustment, pages 20-3, 4

FRONT DAMPER
Removal, page 20-18
Disassembly/Inspection, page 20-18
Assembly, page 20-19

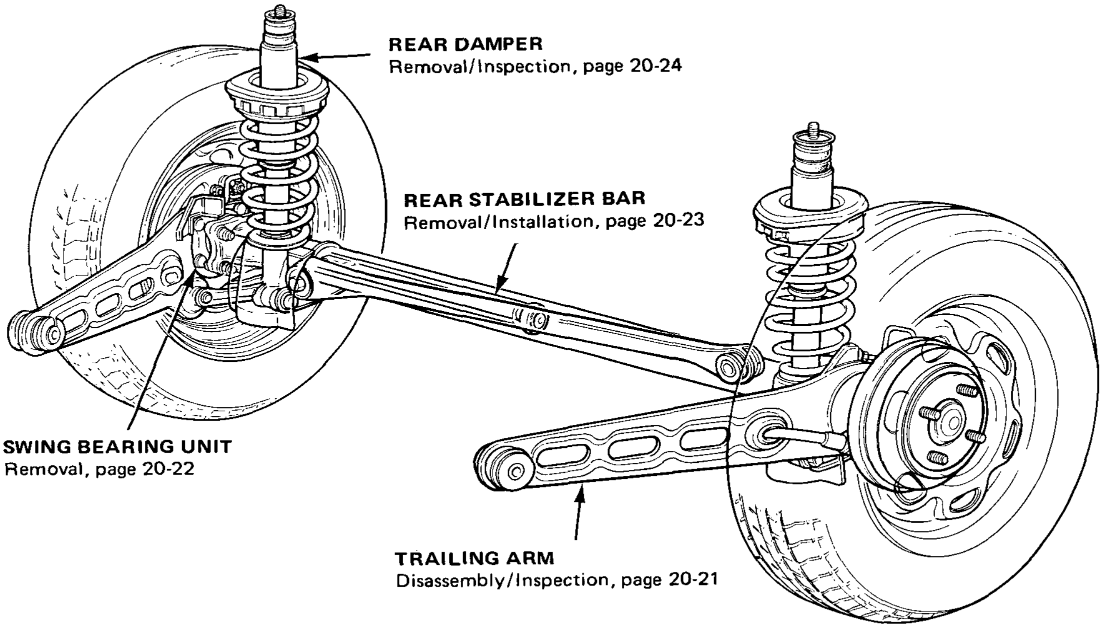
RADIUS ARM
Removal/Installation, page 20-13

FRONT STABILIZER BAR
Removal/Installation, page 20-13

FRONT KNUCKLE, HUB
Removal, page 20-10
Bearing removal/Installation, page 20-11

TORSION BAR SPRING
Removal/Installation, page 20-15

LOWER ARM
Removal/Installation, page 20-17



REAR DAMPER
Removal/Inspection, page 20-24

REAR STABILIZER BAR
Removal/Installation, page 20-23

SWING BEARING UNIT
Removal, page 20-22

TRAILING ARM
Disassembly/Inspection, page 20-21

Wheel Alignment

Front Toe Adjustent

1. Center steering wheel spokes.

   NOTE: Measure difference in toe measurements with the wheels pointed straight ahead.

   Front Toe:* 0 ± 3 mm *(0 ± 0.118 in.)

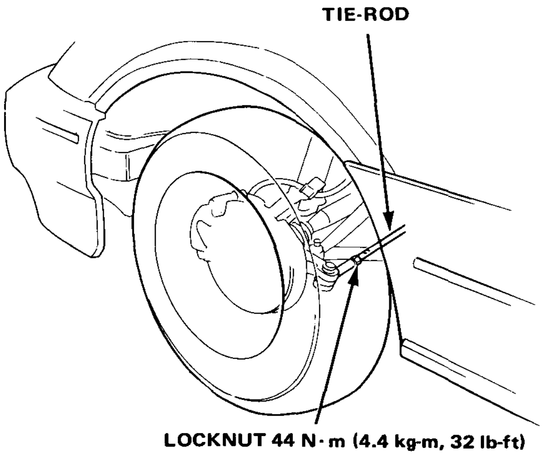
   – If adjustment is required, go on to step 2.
   – If no adjustment is required, remove alignment equipment.

2. Loosen the tie-rod locknuts and turn both tie-rods in the same direction until the front wheels are in straight ahead position.

3. Turn both tie-rods equally until the toe reading is correct.

4. After adjusting, tighten the tie-rod locknuts.

   NOTE: Make sure the tie-rod boots are not twisted or otherwise displaced after adjustment.



Rear Toe Inspection

1. Release parking brake.

   NOTE: If the parking brake is engaged, you may get an incorrect reading.

   Rear toe: IN 2 ± 2 mm (0.079 ± 0.079 in.)

   NOTE: Rear wheel toe is not adjustable. If out of specification, check suspension for damage and replace parts as necessary, then recheck alignment.

Camber Inspection

1. With the wheels in a straight ahead position, remove the spindle nut and install the special tool on the spindle as shown.

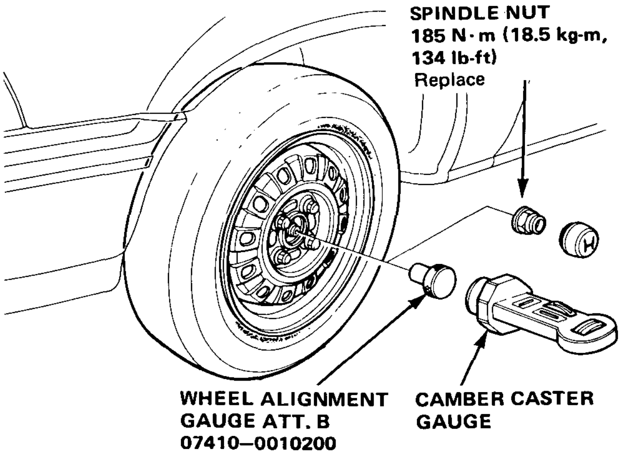
2. Set up the camber/caster gauge.

3. Read the camber on the gauge with the bubble at the center of the gauge.

Front Camber

	KC	KB,KE,KF KG,KS,KW KX	KQ	KY	Others
Coupe	0°00′±1°	←	←	←	←
2D H/B	0°00′±1°	←	←	0°20′±1°	0°00′±1°
4D	0°00′±1°	←	←	0°30′±1°	0°00′±1°
4D H/B	0°20′±1°	0°26′±1°	0°30′±1°	←	←

Rear Camber : -0°45′ ± 15′


SPINDLE NUT
185 N·m (18.5 kg-m, 134 lb-ft)
Replace
WHEEL ALIGNMENT GAUGE ATT. B 07410–0010200
CAMBER CASTER GAUGE

NOTE:

- If your alignment equipment must be mounted at axle centerline, use Honda front and rear wheel alignment attachments as shown.
- Camber is not adjustable. If out of specification, check suspension for damage and replace parts as necessary, then recheck alignment.

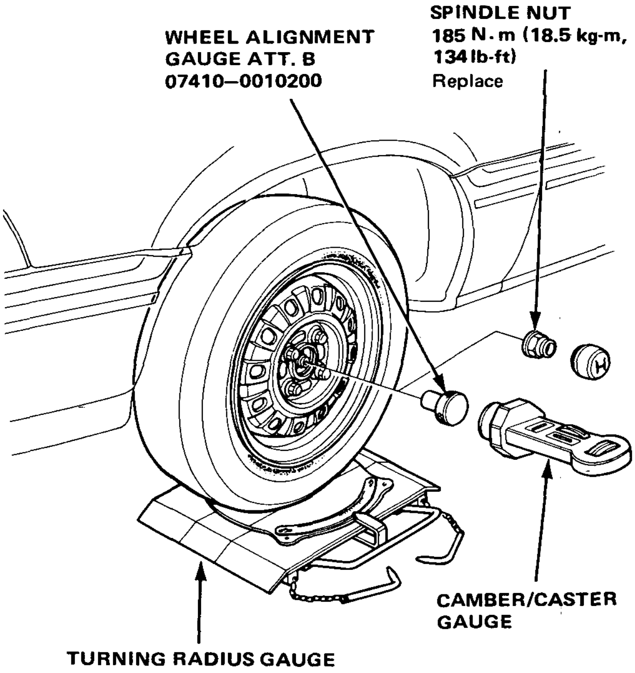
Wheel Alignment

Caster Inspection

1. Jack up the front of the car and set the turning redius gauges beneath the front wheels, then lower the car.
2. Remove the spindle nut and install Wheel Alignment Gauge Attachment.
3. Install Camber/Caster Gauge on the Attachment and apply the front brake. Turn the wheel 20° inward.
4. Turn the adjust screw so that the bubble in the caster gauge is at 0°. Return the wheel to the straight ahead position.

Caster angle:

	KC	KB,KE,KF KG,KS,KW KX	KQ	KY	Others
Coupe	2°25′±1°	←	←	←	←
2D H/B	2°20′±1°	←	←	2°10′±1°	2°20′±1°
4D	2°20′±1°	←	←	2°15′±1°	2°20′±1°
4D H/B	2°05′±1°	1°49′±1°	2°00′±1°	←	←



NOTE:

- If your alignment equipment must be mounted at axle centerline, use Honda front and rear wheel alignment attachments as shown.
- Caster is not adjustable. If out of specification, check suspension for damage and replace parts as necessary, then recheck alignment.

Spring Height

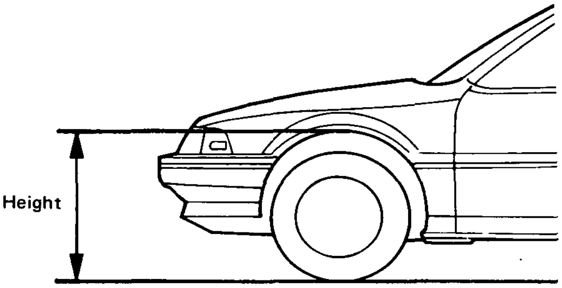
Inspection

NOTE:

- The car must not be occupied; the tires must be properly inflated and in good condition (i.e., the tread wear indicators must not be showing); and the fuel tank must be full.
- Bounce the front or rear of the car up and down several times before measuring.

Front

1. Measure the torsion bar spring height between the ground and the wheel arch.



		Standard
Coupe	KC	644±15mm (25.35±0.59 in)
	Others	639±15mm (25.16±0.59 in)
2D H/B	All	646±15mm (25.43±0.59 in)
	Arias for higher Ground clearance	671±15mm (26.42±0.59 in)
4D	All	651±15mm (25.63±0.59 in)
	Arias for higher Ground clearance	676±15mm (26.61±0.59 in)
4D H/B	KB,KE,KF,KG,KS,KW KX,KD,KP,KT,KU,KQ	659±15mm (25.94±0.59 in)
	KC	649±15mm (25.55±0.59 in)
	Arias for higher Ground clearance	674±15mm (26.54±0.59 in)

Higer Ground Clearance:
Standard for KY
Factory Option for KD, KE, KF, KP, KT, KU, KW

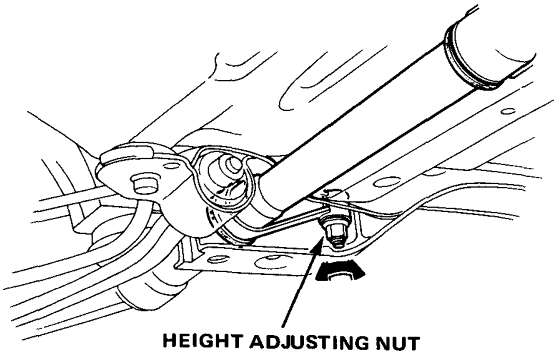
2. Adjust the height if the reading is not within specifications. (Page 20-5)

Torsion Bar Adjustment

1. Raise the front wheels off the ground.
2. Adjust the height by turning the height adjusting nut.

Height adjusting nut	Height
Tighten (Turned right) Loosen (Turned left)	Up Down

Height varies 5 mm (0.20 in) per turn of the adjusting nut.

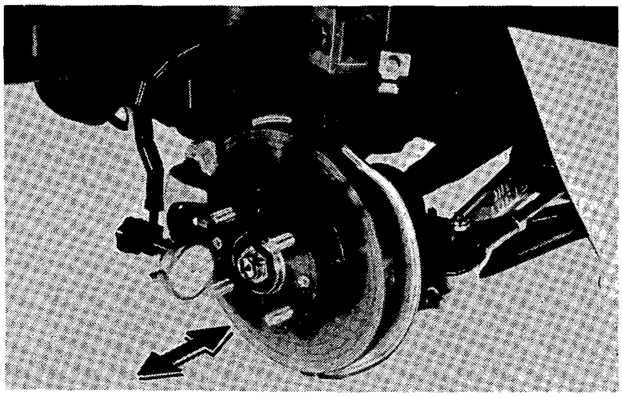


3. Lower the front wheels to the ground, push the car up and down and back and forth several times, then confirm that the spring height is within specifications.

Bearing End Play

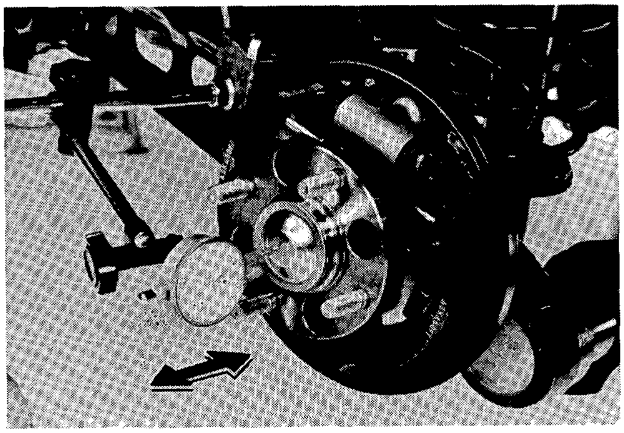
Front Wheel End Play

Standard: 0—0.05 mm (0—0.002 in.)



Rear Wheel End Play

Standard: 0—0.05 mm (0.002 in)

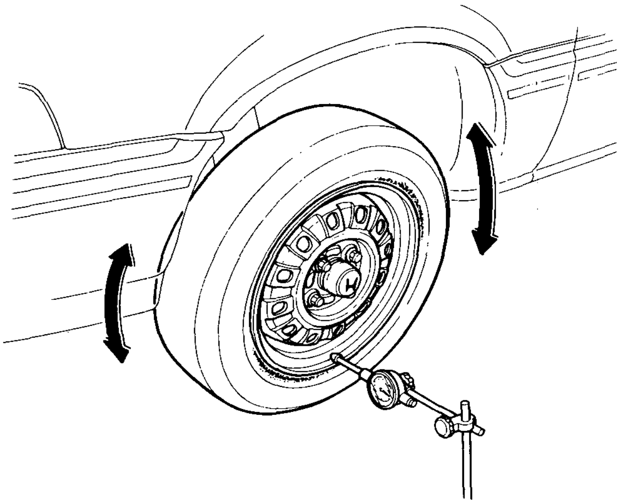


Wheel Measurement

Runout

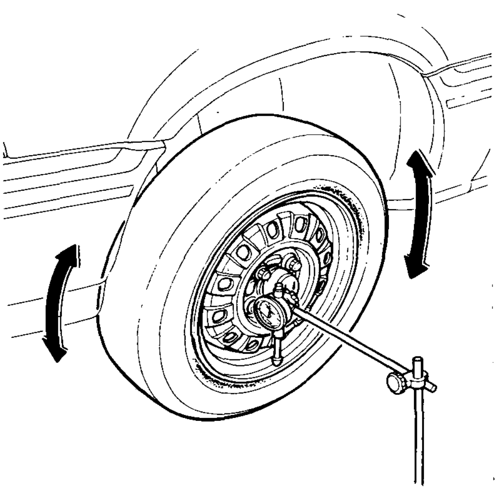
Front and Rear Wheel Axial Runout

Standard: **Steel—**
0—1.0 mm (0.04 in.)
Aluminum—
0—0.7 mm (0.028 in.)



Front and Rear Wheel Radial Runout

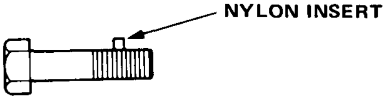
Standard:	**Steel—**	**0—1.0 mm (0.039 in.)**
	Aluminum—	**0—0.7 mm (0.028 in.)**

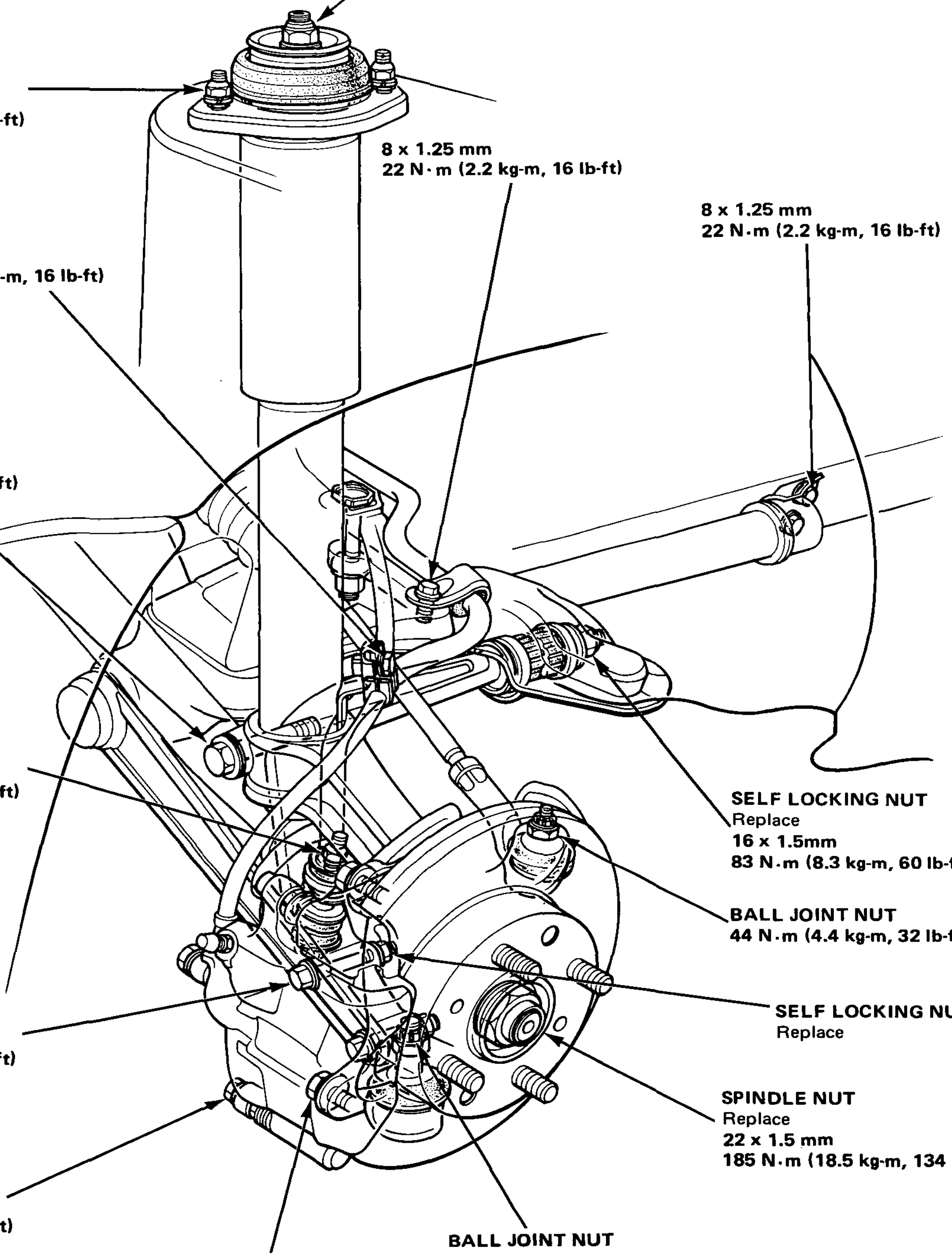


Front Suspension

Index

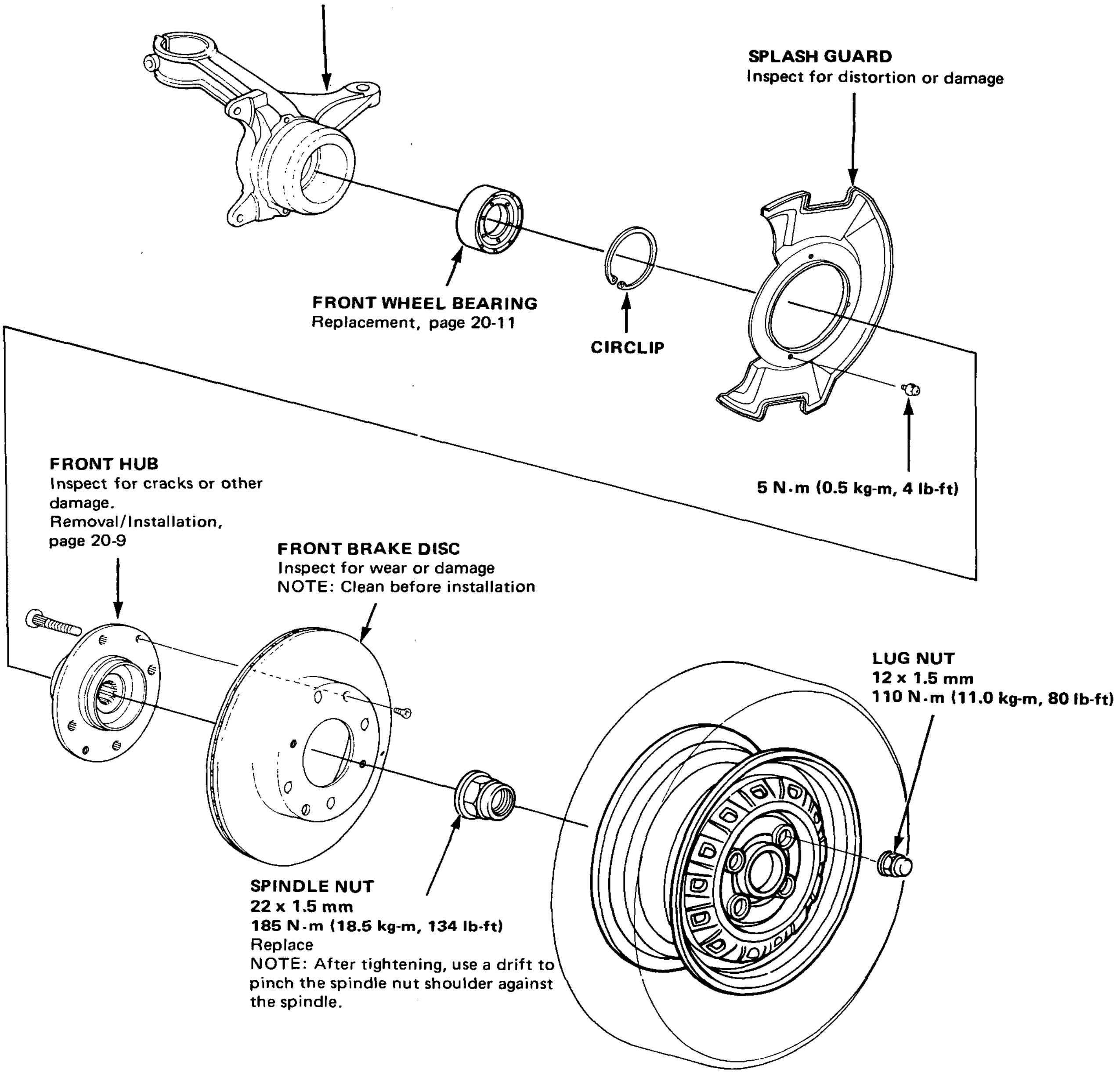
NOTE: Replace the self-locking bolts if you can easily thread a nut past their nylon locking inserts.


NYLON INSERT


SELF LOCKING NUT
Replace
12 x 1.25 mm
44 N·m (4.4 kg-m, 32 lb-ft)
SELF LOCKING NUT
Replace
10 x 1.25 mm
39 N·m (3.9 kg-m, 28 lb-ft)
8 x 1.25 mm
22 N·m (2.2 kg-m, 16 lb-ft)
8 x 1.25 mm
22 N·m (2.2 kg-m, 16 lb-ft)
8 x 1.25 mm
22 N·m (2.2 kg-m, 16 lb-ft)
SELF LOCKING BOLT
65 N·m (6.5 kg-m, 47 lb-ft)
SELF LOCKING NUT
Replace
8 x 1.25 mm
22 N·m (2.2 kg-m, 16 lb-ft)
SELF LOCKING NUT
Replace
16 x 1.5mm
83 N·m (8.3 kg-m, 60 lb-ft)
BALL JOINT NUT
44 N·m (4.4 kg-m, 32 lb-ft)
SELF LOCKING NUT
Replace
LOWER ARM BOLT
8 x 1.25 mm
39 N·m (3.9 kg-m, 28 lb-ft)
SPINDLE NUT
Replace
22 x 1.5 mm
185 N·m (18.5 kg-m, 134 lb-ft)
CALIPER PIN A BOLT
8 x 1.25 mm
18 N·m (1.8 kg-m, 13 lb-ft)
12 x 1.25 mm
75 N·m (7.5 kg-m, 54 lb-ft)
BALL JOINT NUT
12 x 1.25 mm
44 N·m (4.4 kg-m, 32 lb-ft)

Knuckle/Hub

Index



KNUCKLE
Inspect for cracks

SPLASH GUARD
Inspect for distortion or damage

FRONT WHEEL BEARING
Replacement, page 20-11

CIRCLIP

5 N·m (0.5 kg-m, 4 lb-ft)

FRONT HUB
Inspect for cracks or other damage.
Removal/Installation, page 20-9

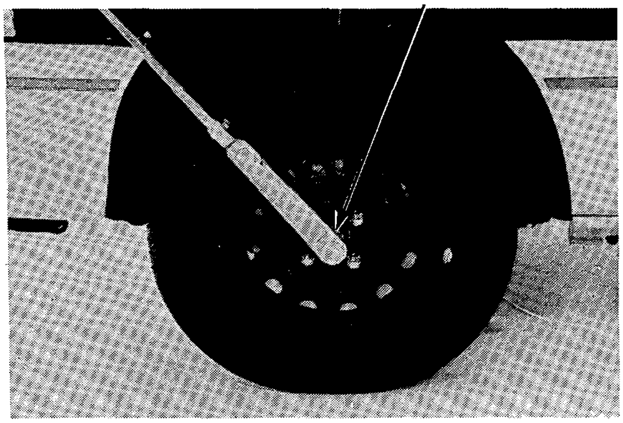
FRONT BRAKE DISC
Inspect for wear or damage
NOTE: Clean before installation

LUG NUT
12 x 1.5 mm
110 N·m (11.0 kg-m, 80 lb-ft)

SPINDLE NUT
22 x 1.5 mm
185 N·m (18.5 kg-m, 134 lb-ft)
Replace
NOTE: After tightening, use a drift to pinch the spindle nut shoulder against the spindle.

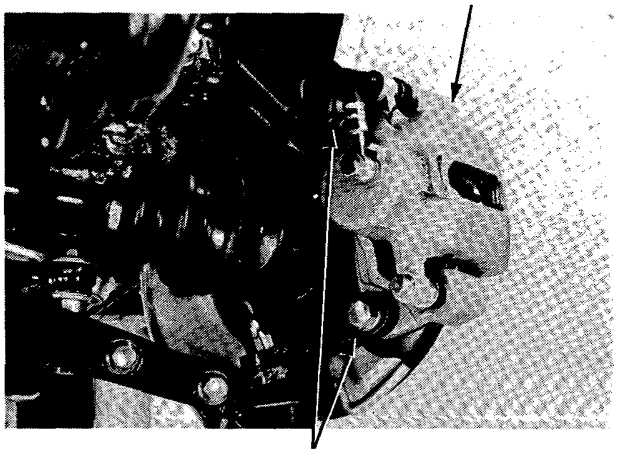
Replacement

1. Pry the spindle nut lock tab away from the spindle, then loosen the nut using a 32 mm socket.


SPINDLE NUT
Replace
185 N.m (18.5 kg-m, 133 lb-ft)

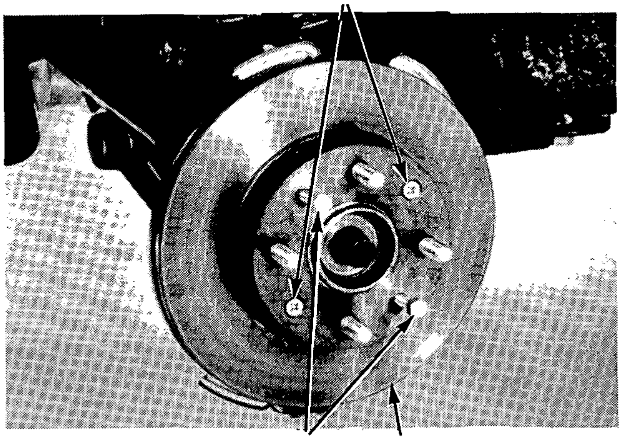
2. Loosen the lug nuts slightly.
3. Raise the front of car and support with safety stands in the proper locations.
4. Remove the lug nuts, wheel, and spindle nut.
5. Remove the caliper mounting bolts and hang the cliper assembly to one side.

   CAUTION: To prevent accidental damage to the caliper assembly or brake hose, use a short piece of wire to hang the caliper assembly from the undercarriage.

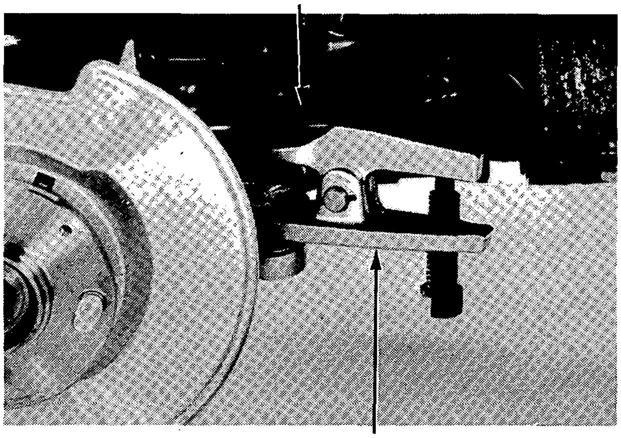

CALIPER ASSY
78 N.m (7.8 kg-m, 56 lb-ft)

6. Remove the 6 mm brake disc retaining screws.
7. Screw two 8 x 1.25 x 12 mm bolts into the disc to push it away from the hub.

   NOTE: Turn each bolt two turns at a time to prevent cocking disc excessively.


DISC RETAINING SCREWS 6 mm
BOLTS FOR DISC REMOVAL
8 x 1.25 mm
BRAKE DISC

8. Remove the cotter pin from the tie-rod castle nut then remove the nut.
9. Break loose the tie-rod ball joint using Ball Joint Remover, then lift the tie-rod out of the knuckle.


TIE-ROD
BALL JOINT REMOVER
07941-6920001
44 N.m (4.4 kg-m, 32 lb-ft)

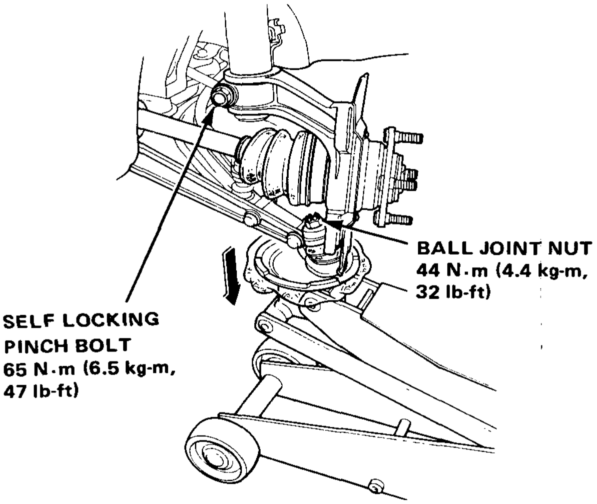
Knuckle/Hub

Replacement (cont'd)

10. Use a floor jack to support the lower control arm, then remove the ball joint cotter pin and nut.

    CAUTION: Make sure the floor jack is positioned securely under the lower control arm, at the ball joint. Otherwise, torsion bar tension on the lower control arm may cause the arm to "jump" suddenly away from the steering knuckle as the ball joint is being removed.

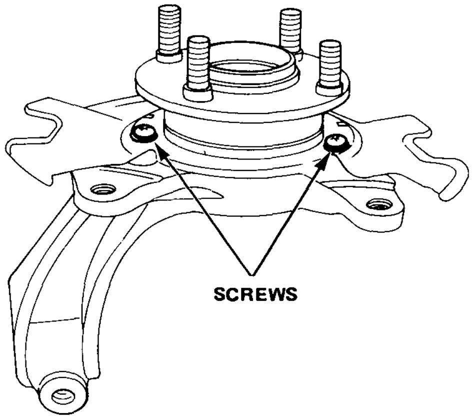
11. Pry the ball joint out of the steering knuckle. If necessary use the ball joint remover.


BALL JOINT NUT
44 N·m (4.4 kg-m, 32 lb-ft)
SELF LOCKING PINCH BOLT
65 N·m (6.5 kg-m, 47 lb-ft)

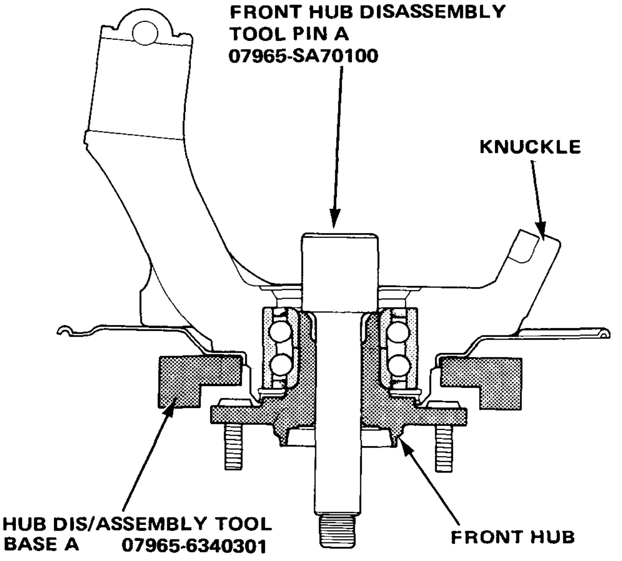
12. Remove the self locking pinch bolt, then use a brass or lead hammer to tap the knuckle down until it clears the damper.

13. Pull the driveshaft out of the knuckle, then remove the hub/knuckle assembly.

14. Remove the two screws holding the splash guard on the steering knuckle.



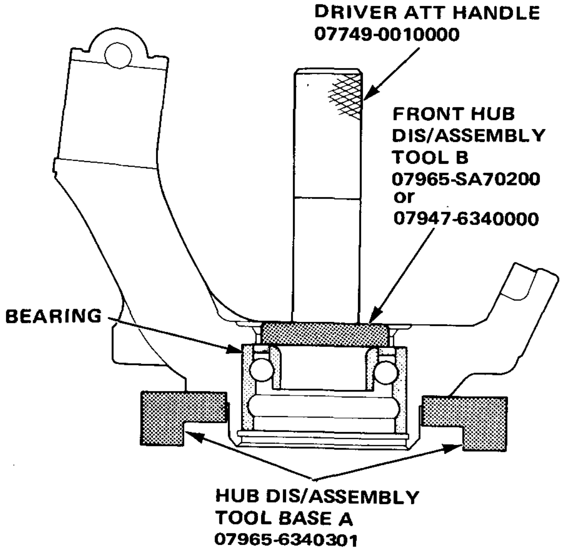
15. Remove the hub from the knuckle with a hydraulic press and the special tools shown below.


FRONT HUB DISASSEMBLY TOOL PIN A
07965-SA70100
KNUCKLE
HUB DIS/ASSEMBLY TOOL BASE A 07965-6340301
FRONT HUB

CAUTION:
- **Make sure the knuckle is securely mounted on the base.**
- **Take care not to distort the splash guard.**

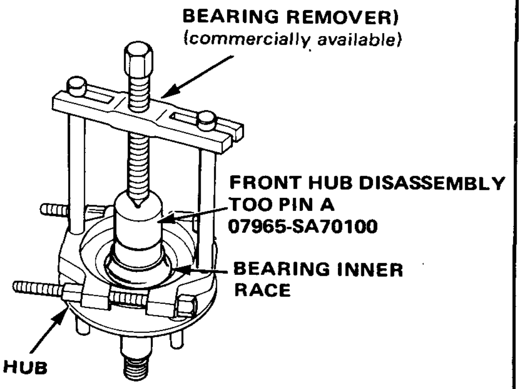
Bearing Removal

1. Remove the circlip.
2. Remove the bearing from the steering knuckle with the hydraulic press and special tools shown below.


DRIVER ATT HANDLE
07749-0010000
FRONT HUB
DIS/ASSEMBLY
TOOL B
07965-SA70200
or
07947-6340000
BEARING
HUB DIS/ASSEMBLY
TOOL BASE A
07965-6340301

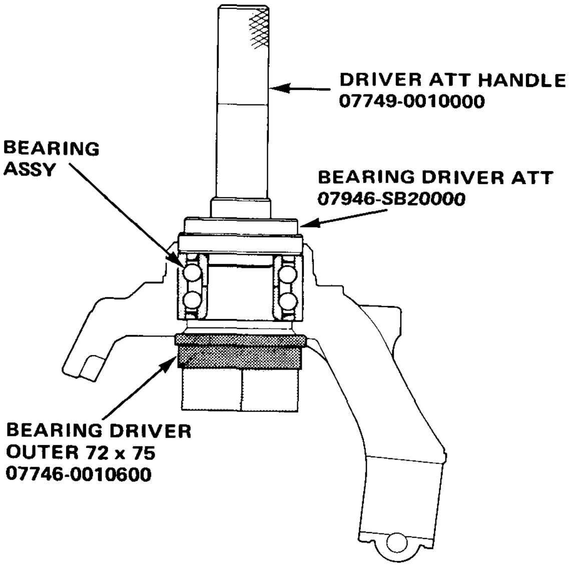
3. Remove the outboard bearing inner race from the hub with the special tool and a bearing remover.

NOTE: Wash the knuckle and hub thoroughly before reassembly.

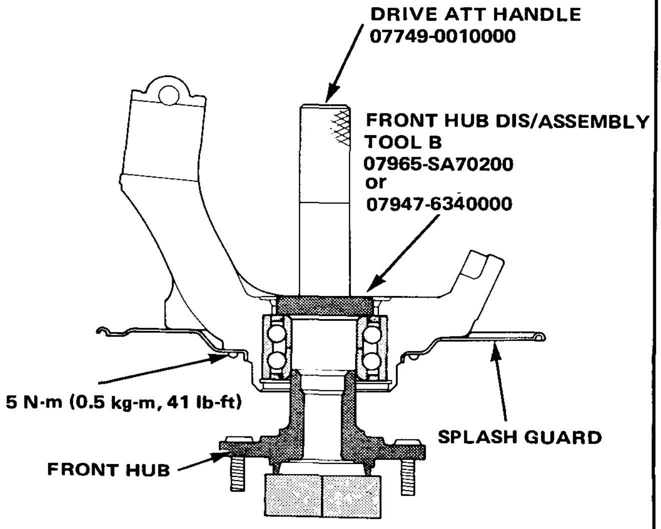

BEARING REMOVER)
(commercially available)
FRONT HUB DISASSEMBLY
TOO PIN A
07965-SA70100
BEARING INNER
RACE
HUB

Knuckle/hub Reassembly

1. Push the bearing assy into the knuckle with a hydraulic press and the special tools shown below.


DRIVER ATT HANDLE
07749-0010000
BEARING
ASSY
BEARING DRIVER ATT
07946-SB20000
BEARING DRIVER
OUTER 72 x 75
07746-0010600

2. Install the circlip.
3. Install the splash buard.
4. Push the front hub into the knuckle with a hydraulic press and the special tools shown below.

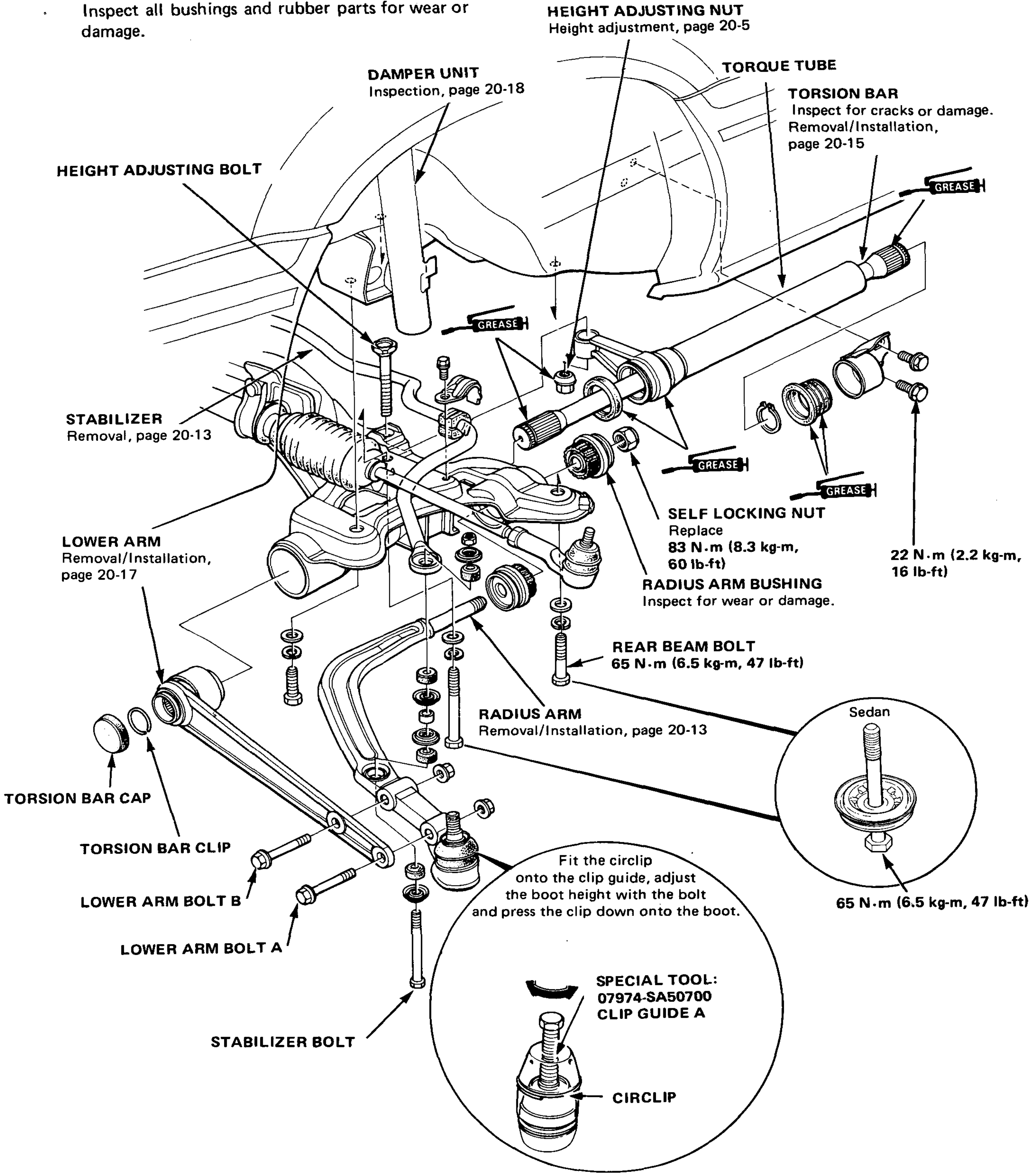

DRIVE ATT HANDLE
07749-0010000
FRONT HUB DIS/ASSEMBLY
TOOL B
07965-SA70200
or
07947-6340000
5 N·m (0.5 kg-m, 41 lb-ft)
SPLASH GUARD
FRONT HUB

Lower Arm/Radius Arm/Stabilizer/Torsion Bar

Index

NOTE: Replace the locking nut after removal.

- Inspect all bushings and rubber parts for wear or damage.


HEIGHT ADJUSTING NUT
Height adjustment, page 20-5
DAMPER UNIT
Inspection, page 20-18
TORQUE TUBE
TORSION BAR
Inspect for cracks or damage.
Removal/Installation, page 20-15
HEIGHT ADJUSTING BOLT
GREASE
GREASE
GREASE
GREASE
STABILIZER
Removal, page 20-13
SELF LOCKING NUT
Replace
83 N·m (8.3 kg-m, 60 lb-ft)
22 N·m (2.2 kg-m, 16 lb-ft)
LOWER ARM
Removal/Installation, page 20-17
RADIUS ARM BUSHING
Inspect for wear or damage.
REAR BEAM BOLT
65 N·m (6.5 kg-m, 47 lb-ft)
Sedan
RADIUS ARM
Removal/Installation, page 20-13
TORSION BAR CAP
TORSION BAR CLIP
LOWER ARM BOLT B
LOWER ARM BOLT A
65 N·m (6.5 kg-m, 47 lb-ft)
SPECIAL TOOL:
07974-SA50700
CLIP GUIDE A
CIRCLIP
STABILIZER BOLT

Fit the circlip onto the clip guide, adjust the boot height with the bolt and press the clip down onto the boot.

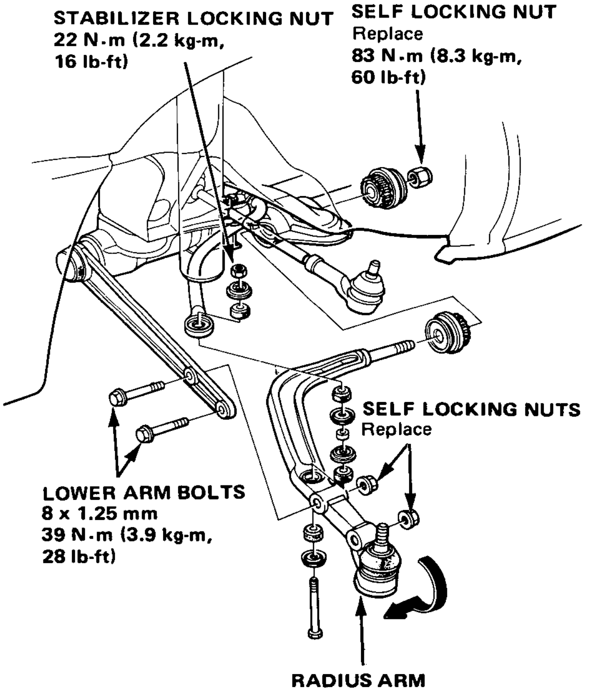
Radius Arm

Removal/Installation

1. Raise the front of the car off the ground and support it with safety stands (see page 1-7 for the proper location of the safety stands).
2. Remove the front wheels.
3. Remove the radius arm ball joint from the knuckle. (Page 20-10)

CAUTION: Make sure the floor jack is positioned securely under the lower control arm at the ball joint. Otherwise, torsion bar tension on the lower control arm may cause the arm to "jump" suddenly away from the steering knuckle as the ball joint is being removed.

4. Remove the radius arm self locking nuts.


STABILIZER LOCKING NUT
22 N·m (2.2 kg-m, 16 lb-ft)
SELF LOCKING NUT
Replace
83 N·m (8.3 kg-m, 60 lb-ft)
SELF LOCKING NUTS
Replace
LOWER ARM BOLTS
8 x 1.25 mm
39 N·m (3.9 kg-m, 28 lb-ft)
RADIUS ARM

5. Remove the stabilizer locking nut and separate the radius arm from the stabilizer spring.
6. Remove the lower arm bolts.
7. Remove the radius arm by pulling it down and then forward.
8. Installation is the reverse order of removal.

CAUTION: Tighten all bushings and rubber dampered parts only after the car is back on the ground.

Stabilizer

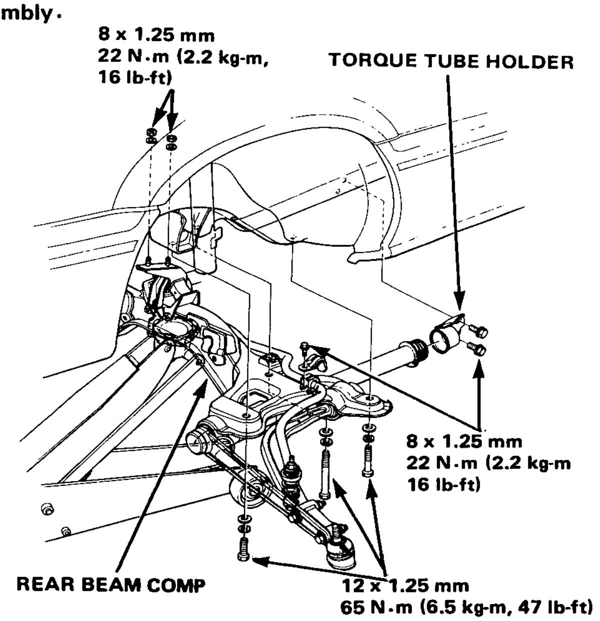
Removal

1. Raise the front of the car off the ground and support it with safety stands (see page 1-7 for the proper location of the safety stands).
2. Remove the front wheels.
3. Support the weight of the engine with a chain hoist or similar device.
4. Remove the steering gearbox. (Page 18-4)
5. Separate the radius arm ball joint from the knuckle. (Page 20-10)

CAUTION: Make sure the floor jack is positioned securely under the lower control arm at the ball joint. Otherwise, torsion bar tension on the lower control arm may cause the arm to "jump" suddenly away from the steering knuckle as the ball joint is being removed.

6. Remove the torque tube holder.
7. Remove exhaust pipes A and B. (Page 9-4)
8. Manual Transmission:
   Disconnect the shift rod and extension from the transmission. (Page 5-9, 5-10)
   Automatic Transmission:
   Remove the shift cable guide from the floor and pull the shift cable down by hand.
9. Remove the engine mount bracket nuts.
10. Pry off the rear beam by placing a jack at the center and removing the six 12 mm bolts.

CAUTION: Take care not to drop the rear beam assembly.


8 x 1.25 mm
22 N·m (2.2 kg-m, 16 lb-ft)
TORQUE TUBE HOLDER
8 x 1.25 mm
22 N·m (2.2 kg-m 16 lb-ft)
REAR BEAM COMP
12 x 1.25 mm
65 N·m (6.5 kg-m, 47 lb-ft)

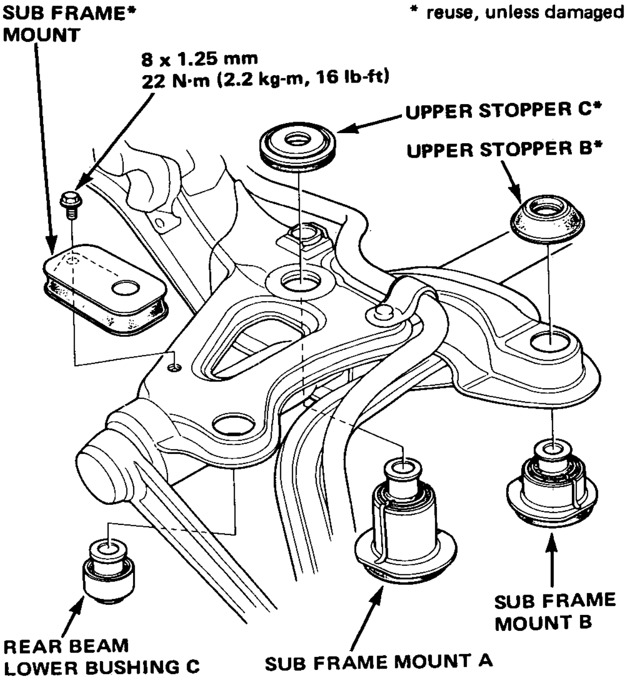
11. Remove the stabilizer bracket and bolt, and then remove the stabilizer spring.
12. Remove the rear mounting bracket.

Sub Frame Mount/Lower Bushing (4D)

Installation

Whenever the rear beam is replaced, the rear beam lower bushing C and sub frame mounts A and B must be replaced.

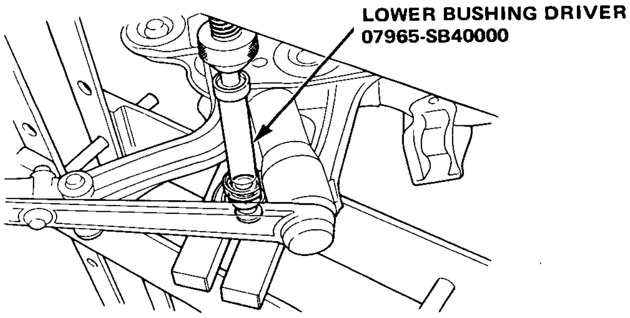
* reuse, unless damaged


SUB FRAME* MOUNT
8 x 1.25 mm
22 N·m (2.2 kg-m, 16 lb-ft)
UPPER STOPPER C*
UPPER STOPPER B*
REAR BEAM LOWER BUSHING C
SUB FRAME MOUNT A
SUB FRAME MOUNT B

- Lower bushing C

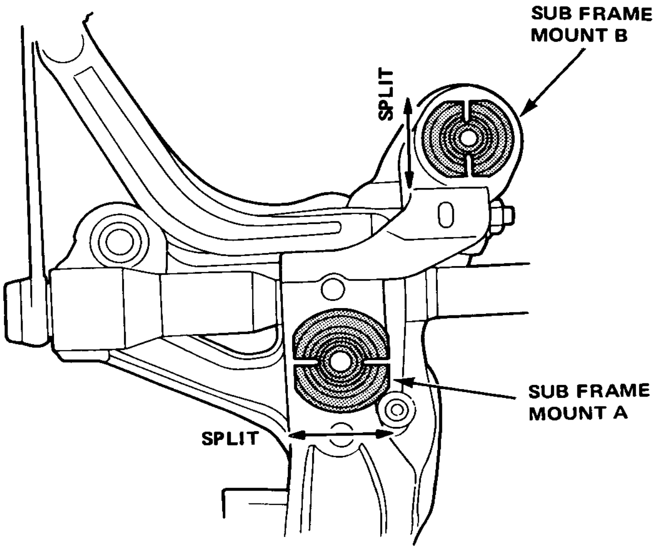
  Press a new bushing into the replacement rear beam until the outer edge is flush with the end of the rear beam.

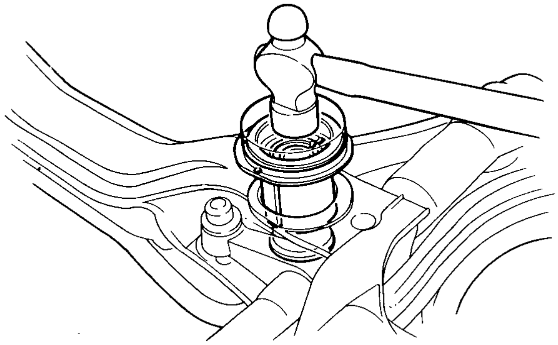
Press-fit load:
500–1,000 kg (1,102–2,205 lb)


LOWER BUSHING DRIVER
07965-SB40000

- Sub frame mounts A and B

  Drive new mounts into place in the rear beam with the splits in the mounts positioned as shown.


SUB FRAME MOUNT B
SPLIT
SUB FRAME MOUNT A
SPLIT



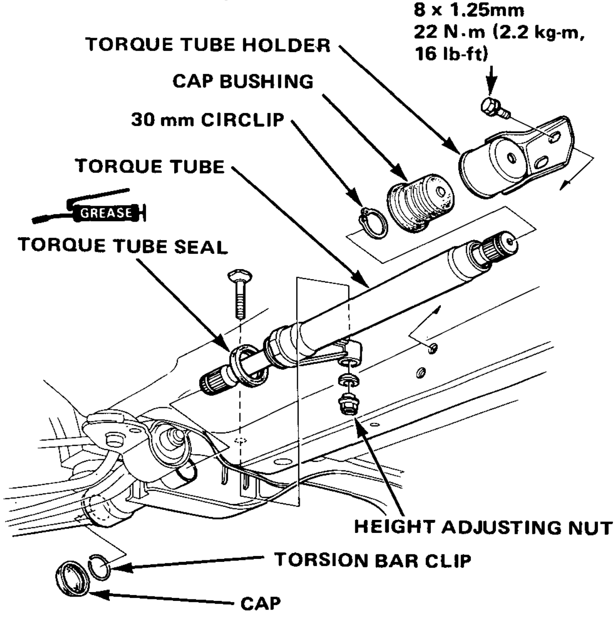
NOTE: Be sure to use a suitable pad when driving the new mounts into the rear beam as shown.

Torsion Bar Assembly

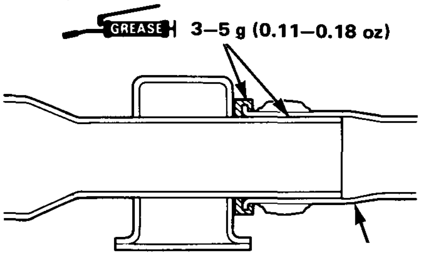
Removal/Installation

1. Jack up the front of the car and support it with safety stands (see page 1-7 for the proper location of safety stands)
2. Remove the height adjusting nut.
3. Remove the torque tube holder.
4. Remove the 30 mm circlip.
5. Remove the torsion bar cap and then remove the torsion bar clip by tapping the torsion bar out of the torque tube.

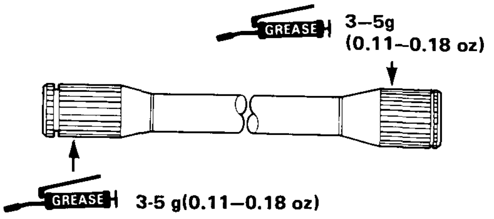
NOTE: Move the lower arm up and down to make the torsion bar slide easier.


8 x 1.25mm
22 N·m (2.2 kg-m, 16 lb-ft)
TORQUE TUBE HOLDER
CAP BUSHING
30 mm CIRCLIP
TORQUE TUBE
GREASE
TORQUE TUBE SEAL
HEIGHT ADJUSTING NUT
TORSION BAR CLIP
CAP

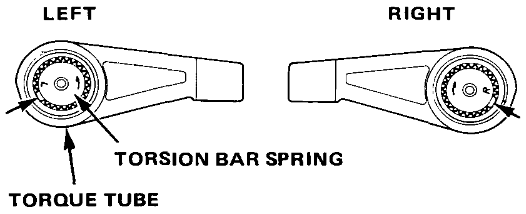
6. Tap the torsion bar backward, out of the torque tube.
7. Remove the torque tube.
8. Inspect the torsion bar for cracks or damage.
9. Install a new torque tube seal onto the torque tube.
10. Coat the torque tube seal and the torque tube sliding surface with grease, then install them on the rear beam.


GREASE
3–5 g (0.11–0.18 oz)

11. Grease the spline at each end of the torsion.


GREASE
3–5g (0.11–0.18 oz)
GREASE
3-5 g(0.11–0.18 oz)

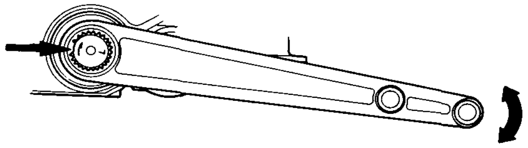
12. Insert the torsion bar into the torque tube from the back.
13. Align the projection or punch mark on the torque tube splines with the cutout or paint mark in the torsion bar splines and insert the torsion bar approximately 10 mm (0.394 in).


LEFT
RIGHT
TORSION BAR SPRING
TORQUE TUBE

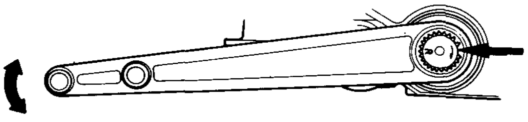
NOTE:

- Move the lower arm up and down for easier installation.
- There are two types of torsion bars and torque tube; torque tubes with and without raised lugs and torsion bars with and without lug reliefs. The torque tube with the raised lug will not fit over a torsion bar without a lug relief. But all other combinations of torque tube and torsion bar will fit together and work properly.

LEFT



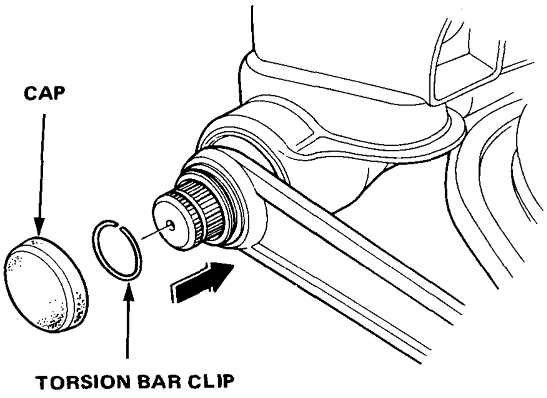
RIGHT



Torsion Bar Assembly

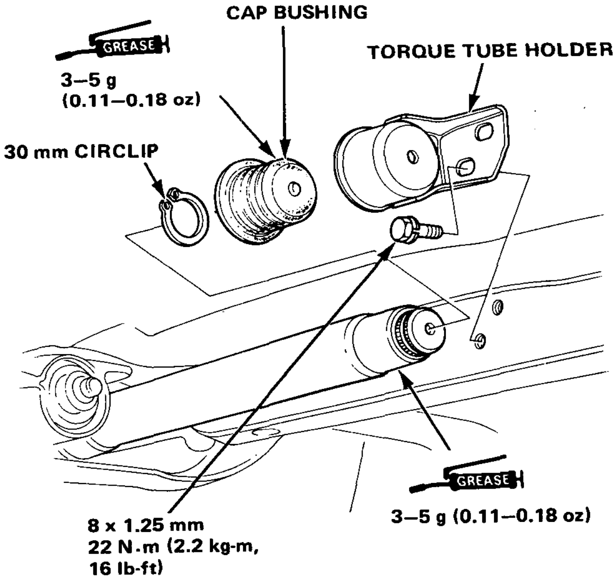
Removal/Installation (cont'd)

14. Install the clip on the torsion bar, and the cap over it.


CAP
TORSION BAR CLIP

15. Install the 30 mm circlip and the torque tube cap.

NOTE: Push the torsion bar forward so that there is no clearance between the 30 mm circlip and the torque tube.


CAP BUSHING
GREASE
3–5 g
(0.11–0.18 oz)
TORQUE TUBE HOLDER
30 mm CIRCLIP
GREASE
3–5 g (0.11–0.18 oz)
8 x 1.25 mm
22 N·m (2.2 kg-m,
16 lb-ft)

16. Coat the cap bushing with grease and install it on the torque tube.
17. Install the torque tube holder.
18. Tighten the height adjusting nut temporarily.

NOTE: Coat the height adjusting nut and the torque tube sliding surface with grease.

19. Set the car on the ground and adjust the torsion bar spring height. (Page 20-5)

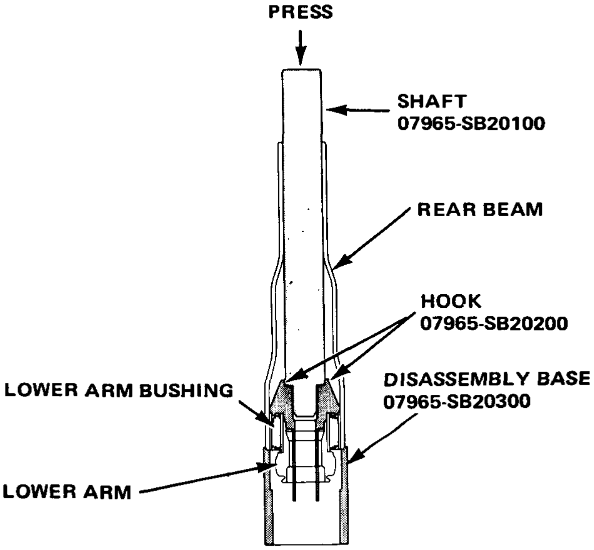
Lower Arm

Replacement

NOTE: Lower arm replacement should be done with the rear beam removed from the frame.

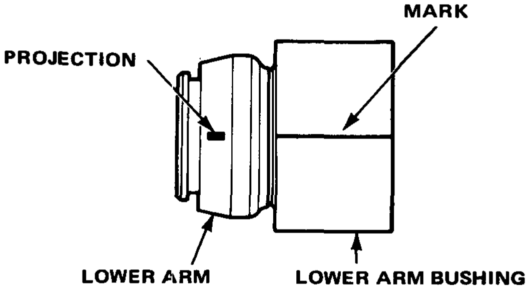
1. Remove the lower arm with a hydraulic press and the special tools.

1) Set the special tool B in the lower arm bushing outer pipe as shown.
2) Insert special tool A into the rear beam to set special tool B.
3) Place special tool C under the rear beam and remove the lower arm by pressing tool A.

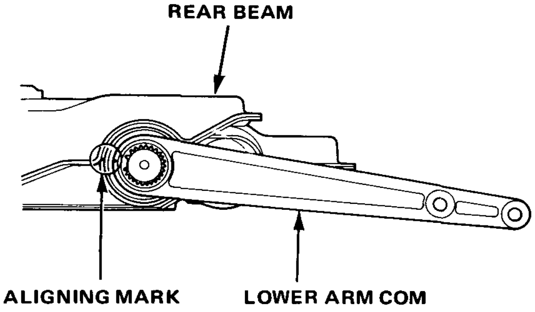

PRESS
SHAFT
07965-SB20100
REAR BEAM
HOOK
07965-SB20200
LOWER ARM BUSHING
DISASSEMBLY BASE
07965-SB20300
LOWER ARM

LOWER ARM COMP DIS/ASSEMBLY TOOL SET
07965-SB20000

2. Mark the lower arm bushing so that the lower arm can be aligned easily with the rear beam.

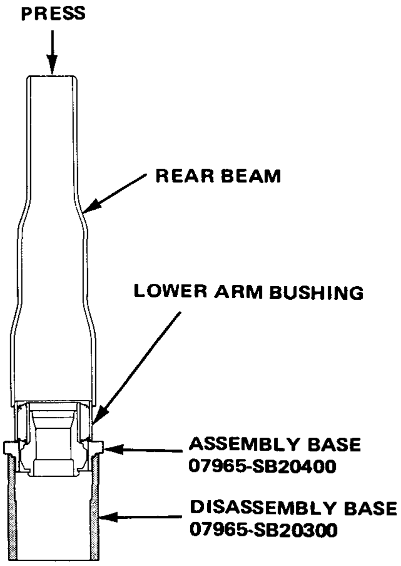

MARK
PROJECTION
LOWER ARM
LOWER ARM BUSHING

3. Align the index mark on the rear beam with the mark on the bushing and then install the rear beam by tapping it with a soft hammer.


REAR BEAM
ALIGNING MARK
LOWER ARM COM

4. Install the lower arm with a hydraulic press and the special tools.

1) Place special tool D on special tool C.
Align special tool D with the lower arm bushing outer pipe.

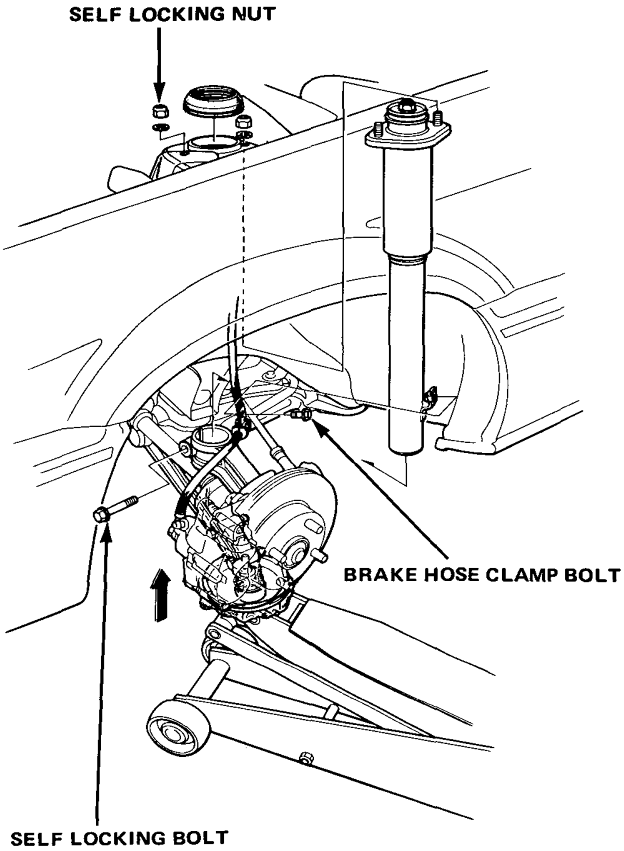

PRESS
REAR BEAM
LOWER ARM BUSHING
ASSEMBLY BASE
07965-SB20400
DISASSEMBLY BASE
07965-SB20300

2) Insert the rear beam so that the lower arm bushing outer pipe aligns with the rear beam pipe, then press the rear beam.

Front Damper

Removal

1. Jack up the front of a car and remove the front wheels.
2. Remove the brake hose clamp bolt.
3. Use a floor jack to support the lower control arm.



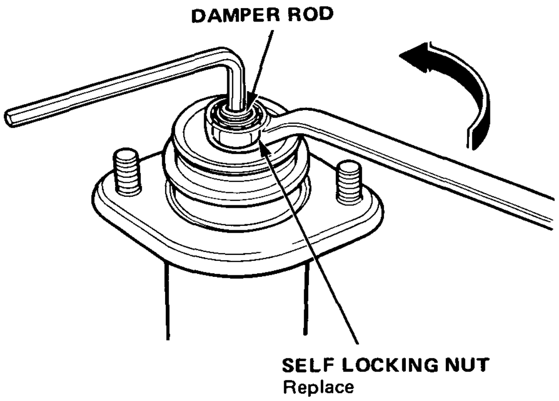
4. Remove the self locking bolt, then lower the jack gradually and remove it from the knuckle.

CAUTION: Make sure the floor jack is positioned securely under the lower control arm at the ball joint. Otherwise, torsion bar tension on the control arm may cause the knuckle to "jump" suddenly away from the front shock absorber as the pinch bolt is being removed.

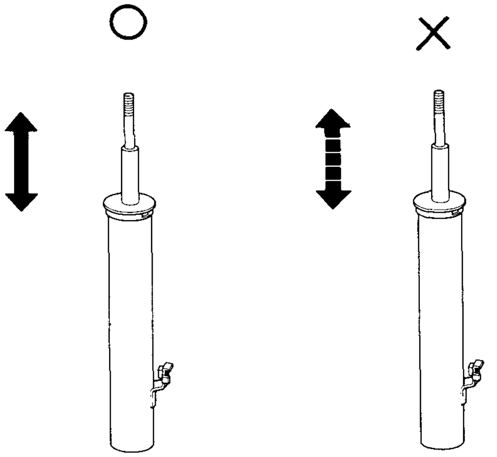
5. Remove the self locking nut and then remove the damper from the frame by compressing the shock absorber spring.

Disassembly/Inspection

1. Remove the self locking nut while holding the damper rod.



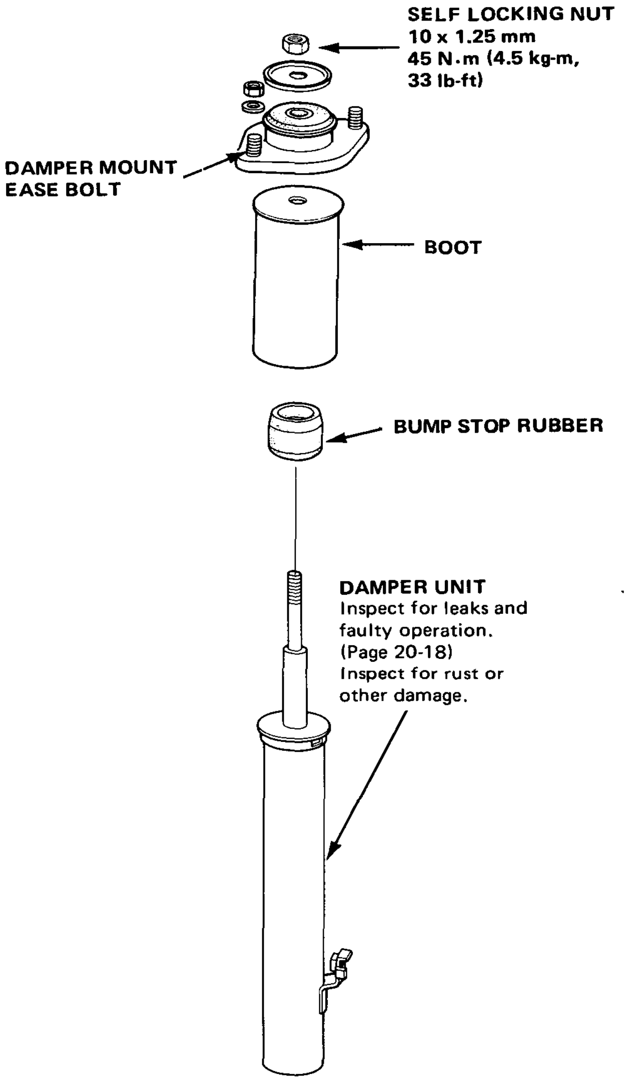
2. Disassemble the damper assembly.
3. Slowly move the damper piston rod a full stroke and check for smooth operation.
4. Jerk the piston rod back and forth 5—10 mm (2—4 in.) to check for smooth operation.
5. Inspect for an oil leak cracks in the piston rod.
6. Listen for abnormal noises.



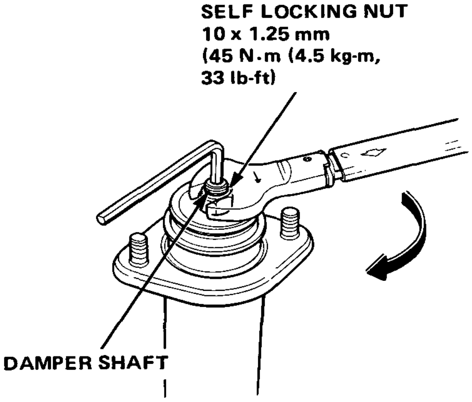
NOTE: The damper cannot be disassembled. If it does not operate smoothly, or if it makes any abnormal noises during operation, replace it.

Assembly/ Installation

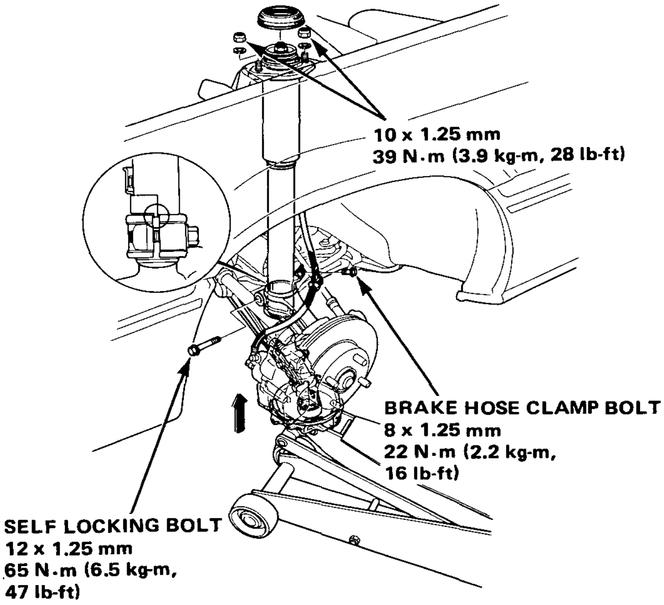
NOTE: Use a new self locking nut for reassembly


SELF LOCKING NUT
10 x 1.25 mm
45 N·m (4.5 kg-m,
33 lb-ft)
DAMPER MOUNT
EASE BOLT
BOOT
BUMP STOP RUBBER
DAMPER UNIT
Inspect for leaks and
faulty operation.
(Page 20-18)
Inspect for rust or
other damage.

1. Install the damper assembly.


SELF LOCKING NUT
10 x 1.25 mm
(45 N·m (4.5 kg-m,
33 lb-ft)
DAMPER SHAFT

2. Install the self locking nut and tighten it while holding the damper shaft.
3. Compress the damper assembly and fit it into the frame.
4. Extend the damper, align the projection on the damper with the slot in the steering knuckle, then fit the damper into the knuckle and tighten the self locking bolt.

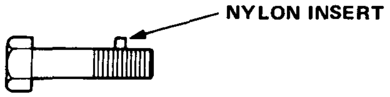

10 x 1.25 mm
39 N·m (3.9 kg-m, 28 lb-ft)
BRAKE HOSE CLAMP BOLT
8 x 1.25 mm
22 N·m (2.2 kg-m,
16 lb-ft)
SELF LOCKING BOLT
12 x 1.25 mm
65 N·m (6.5 kg-m,
47 lb-ft)

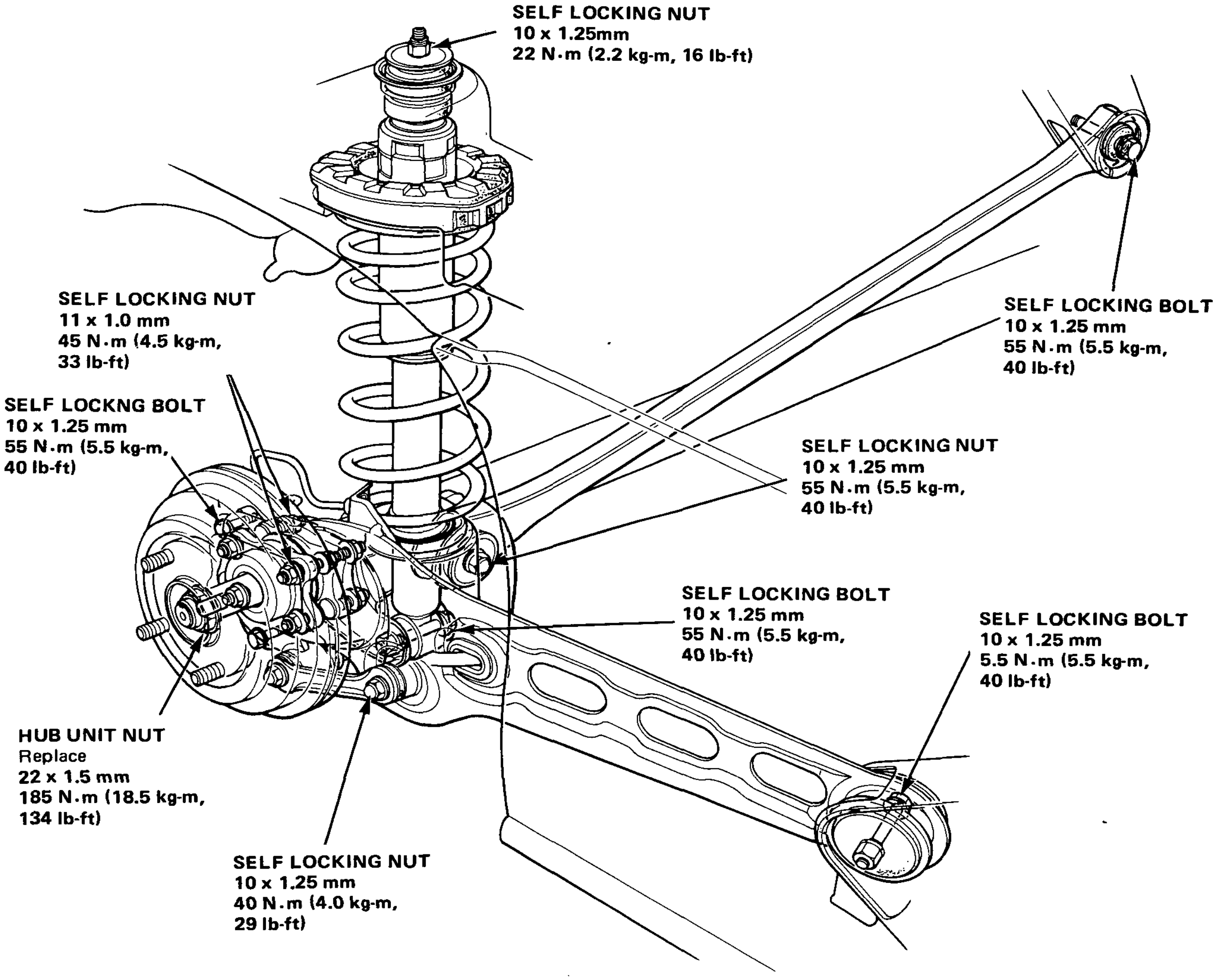
5. Install and tighten the brake hose clamp bolt.

Rear Suspension

Index

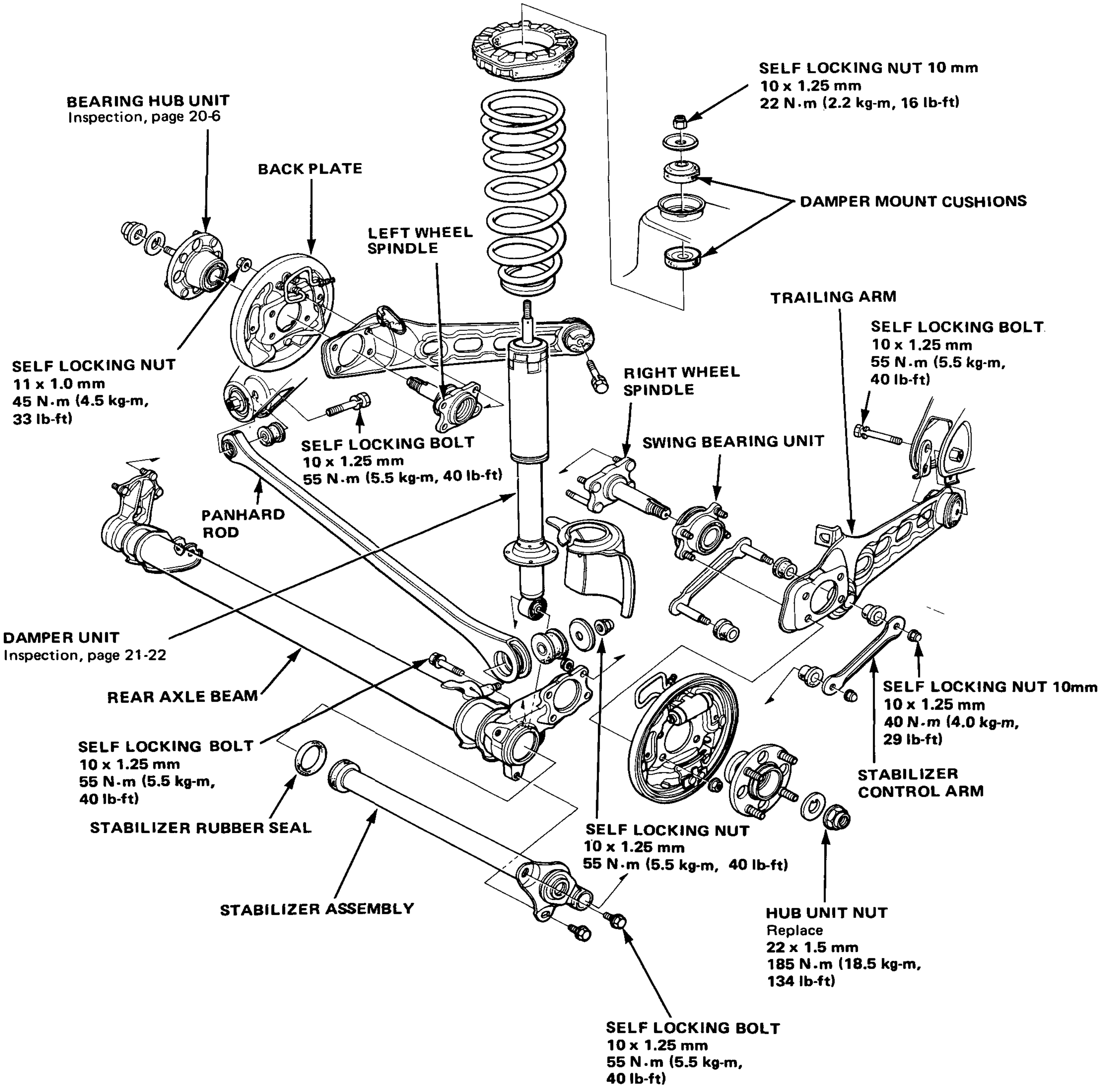
NOTE: Replace self-locking bolts if you can easily thread a nut past their nylon locking inserts.


NYLON INSERT


SELF LOCKING NUT
10 x 1.25mm
22 N·m (2.2 kg-m, 16 lb-ft)
SELF LOCKING NUT
11 x 1.0 mm
45 N·m (4.5 kg-m,
33 lb-ft)
SELF LOCKNG BOLT
10 x 1.25 mm
55 N·m (5.5 kg-m,
40 lb-ft)
SELF LOCKING BOLT
10 x 1.25 mm
55 N·m (5.5 kg-m,
40 lb-ft)
SELF LOCKING NUT
10 x 1.25 mm
55 N·m (5.5 kg-m,
40 lb-ft)
SELF LOCKING BOLT
10 x 1.25 mm
55 N·m (5.5 kg-m,
40 lb-ft)
SELF LOCKING BOLT
10 x 1.25 mm
5.5 N·m (5.5 kg-m,
40 lb-ft)
HUB UNIT NUT
Replace
22 x 1.5 mm
185 N·m (18.5 kg-m,
134 lb-ft)
SELF LOCKING NUT
10 x 1.25 mm
40 N·m (4.0 kg-m,
29 lb-ft)

Disassembly/Inspection

NOTE: Inspect all bushings and rubber parts for wear and damage.
Replace all self locking nuts after disassembly.

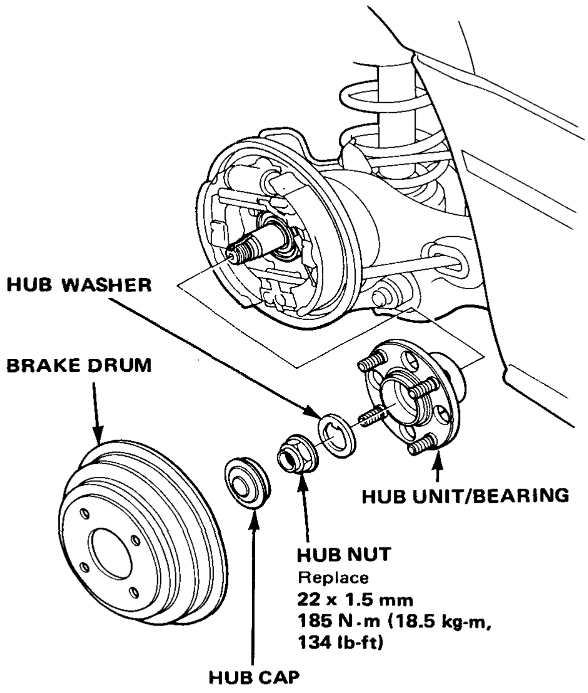


SELF LOCKING NUT 10 mm
10 x 1.25 mm
22 N·m (2.2 kg-m, 16 lb-ft)
BEARING HUB UNIT
Inspection, page 20-6
BACK PLATE
DAMPER MOUNT CUSHIONS
LEFT WHEEL SPINDLE
TRAILING ARM
SELF LOCKING BOLT
10 x 1.25 mm
55 N·m (5.5 kg-m, 40 lb-ft)
SELF LOCKING NUT
11 x 1.0 mm
45 N·m (4.5 kg-m, 33 lb-ft)
RIGHT WHEEL SPINDLE
SELF LOCKING BOLT
10 x 1.25 mm
55 N·m (5.5 kg-m, 40 lb-ft)
SWING BEARING UNIT
PANHARD ROD
DAMPER UNIT
Inspection, page 21-22
REAR AXLE BEAM
SELF LOCKING NUT 10mm
10 x 1.25 mm
40 N·m (4.0 kg-m, 29 lb-ft)
SELF LOCKING BOLT
10 x 1.25 mm
55 N·m (5.5 kg-m, 40 lb-ft)
STABILIZER CONTROL ARM
STABILIZER RUBBER SEAL
SELF LOCKING NUT
10 x 1.25 mm
55 N·m (5.5 kg-m, 40 lb-ft)
STABILIZER ASSEMBLY
HUB UNIT NUT
Replace
22 x 1.5 mm
185 N·m (18.5 kg-m, 134 lb-ft)
SELF LOCKING BOLT
10 x 1.25 mm
55 N·m (5.5 kg-m, 40 lb-ft)

Hub Unit

Removal/Installation

1. Raise the rear of the car and support it with safety stands (see page 1-7 for the proper locations for the safety stands).
2. Remove the rear wheels.
3. Remove the brake drum and inspect the wheel bearing end play. (Page 20-5)
4. Remove the hub unit cap and nut.


HUB WASHER
BRAKE DRUM
HUB UNIT/BEARING
HUB NUT
Replace
22 x 1.5 mm
185 N·m (18.5 kg-m, 134 lb-ft)
HUB CAP

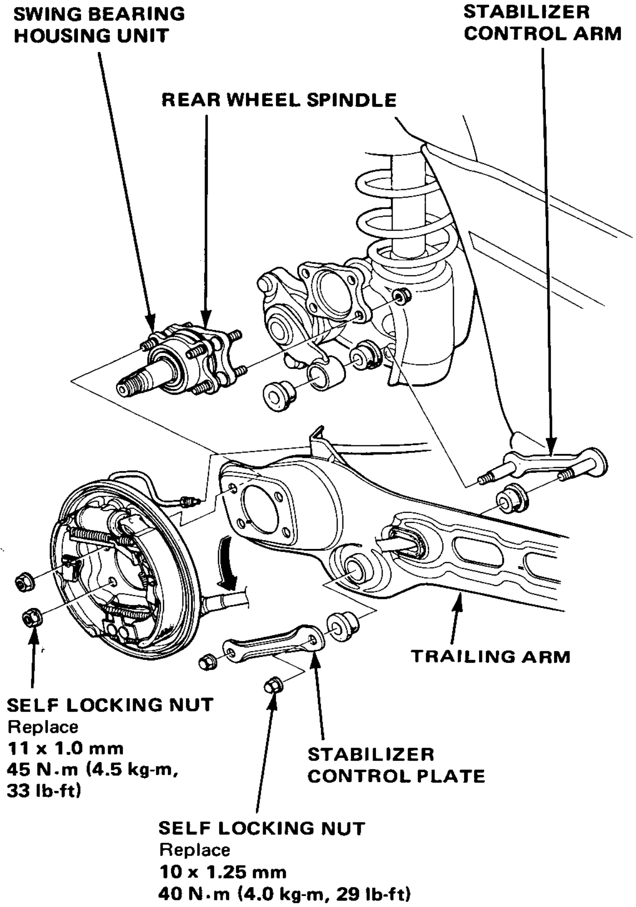
5. Remove the hub unit.
6. Installation is the reverse order of removal.

NOTE: Stake the shoulder of the hub unit nut against the groove in the spindle after tightening.

Swing Bearing

Removal

1. Remove the right backing plate.
2. Remove the stabilizer control plate, then remove the trailing arm from the swing bearing housing unit.


SWING BEARING HOUSING UNIT
STABILIZER CONTROL ARM
REAR WHEEL SPINDLE
TRAILING ARM
SELF LOCKING NUT
Replace
11 x 1.0 mm
45 N·m (4.5 kg-m, 33 lb-ft)
STABILIZER CONTROL PLATE
SELF LOCKING NUT
Replace
10 x 1.25 mm
40 N·m (4.0 kg-m, 29 lb-ft)

3. Remove the rear wheel spindle from the axle beam.

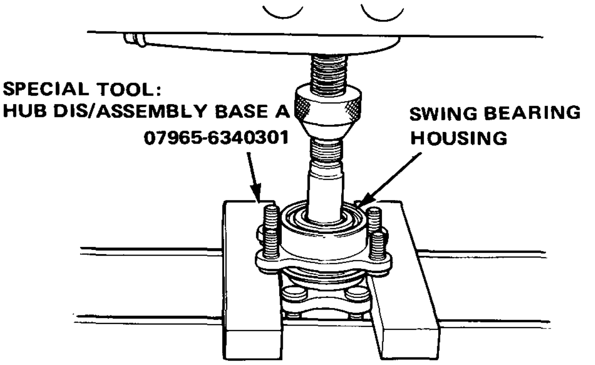
Stabilizer Assembly

Replacement

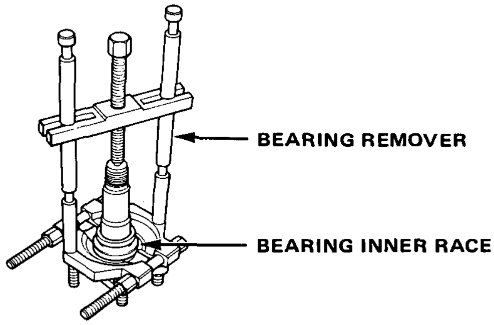
4. Separate the rear wheel spindle from the swing bearing housing with a hydraulic press.

SPECIAL TOOL:

HUB DIS/ASSEMBLY BASE A 07965-6340301

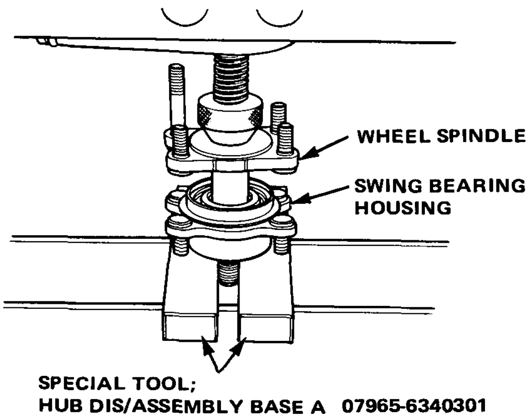

SPECIAL TOOL:
HUB DIS/ASSEMBLY BASE A
07965-6340301
SWING BEARING HOUSING

5. Remove the inner race with a bearing remover.


BEARING REMOVER
BEARING INNER RACE

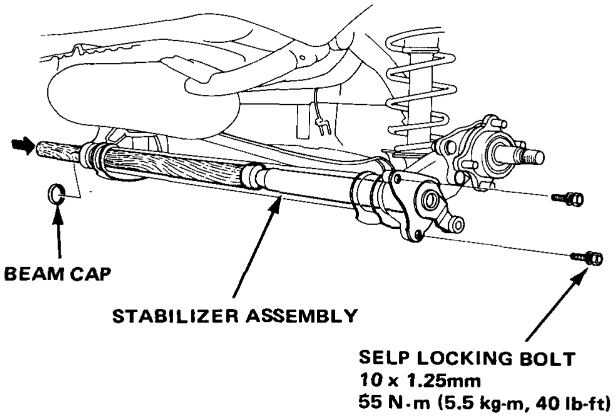
6. Install a new swing bearing when reassembling.
7. Install the wheel spindle into the swing bearing housing with the special tool and hydraulic press.

NOTE: Set the hub dis/assembly base securely at the inner race of the swing bearing housing.


WHEEL SPINDLE
SWING BEARING HOUSING
SPECIAL TOOL;
HUB DIS/ASSEMBLY BASE A 07965-6340301

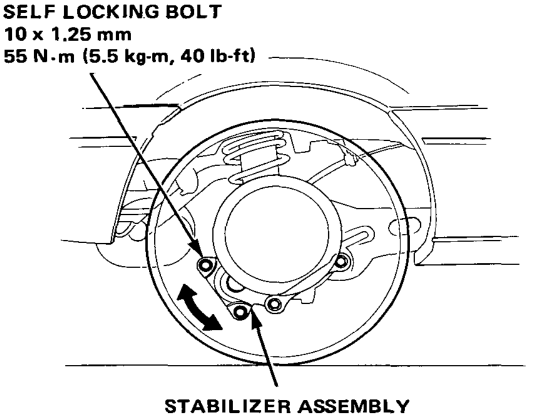
Removal/Installation

1. Raise the rear of the car and support with safety stands (see page 1-7 for the proper locations for the safety stands).
   Remove the rear wheels.
2. Remove both right and left backing plates. (Page 21-23)
3. Remove the stabilizer control arm. (Page 20-21)
4. Remove the stabilizer assembly mounting bolt.


BEAM CAP
STABILIZER ASSEMBLY
SELP LOCKING BOLT
10 x 1.25mm
55 N·m (5.5 kg-m, 40 lb-ft)

5. Remove the right beam cap.
6. Remove the stabilizer assembly by tapping it with a mallet.
7. Stabilizer reassembly is the reverse of removal.

NOTE: When fitting the stabilizer assembly into the axle beam, tighten the two self locking bolts last.

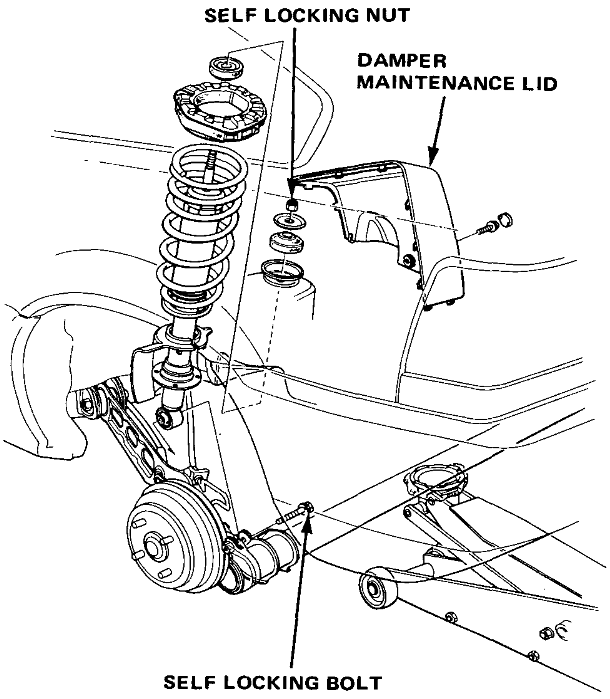

SELF LOCKING BOLT
10 x 1.25 mm
55 N·m (5.5 kg-m, 40 lb-ft)
STABILIZER ASSEMBLY

8. Tighten all bushings and rubber dampened parts after the car is back on the ground.

Rear Damper Assembly

Removal

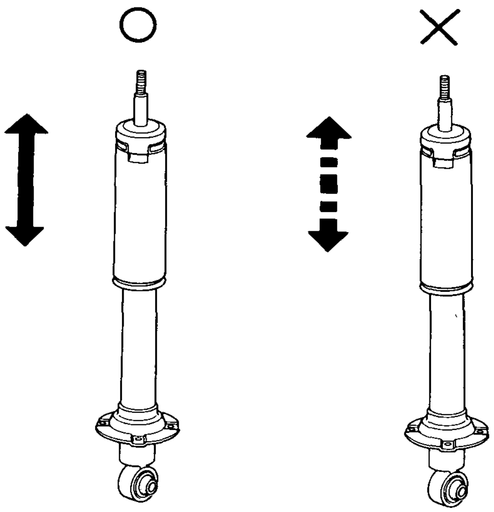
1. Raise the rear of the car and support it with safety stands (see page 1-7 for the proper locations for the safety stands).
2. Remove the rear wheels.
3. Place a jack under the rear axle beam.
4. Remove the damper maintenance lid and the self locking nut.



5. Remove the self locking bolt, damper assembly, spring and the spring cushion.

Inspection

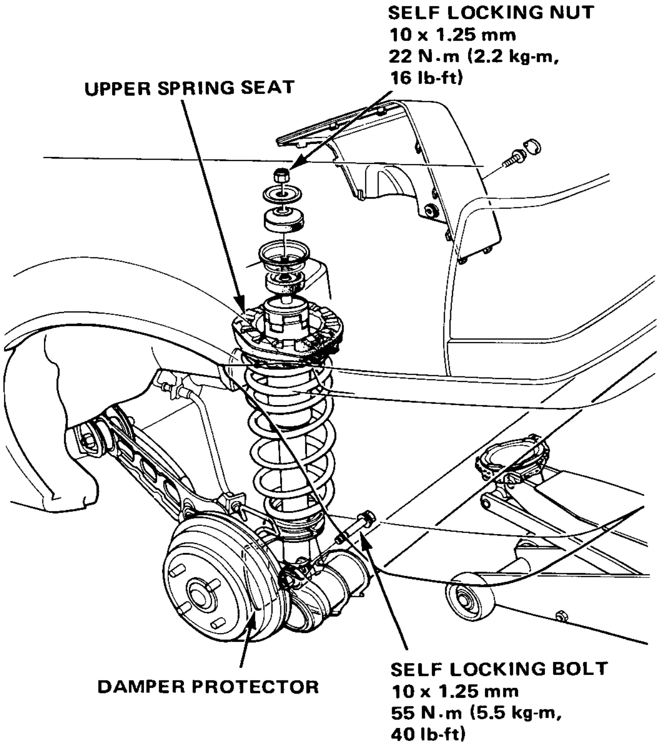
1. Slowly move the damper piston rod a full stroke and check for smooth operation.
2. Jeark the piston rod back and forth 5—10 mm (2—4 in.) and check for smooth operation.
3. Inspect for an oil leak or cracks in the piston rod.
4. Listen for abnormal noises.



NOTE: The damper cannot be disassembled. If it does not operate smoothly, or if it makes any abnormal noises during operation, replace it.

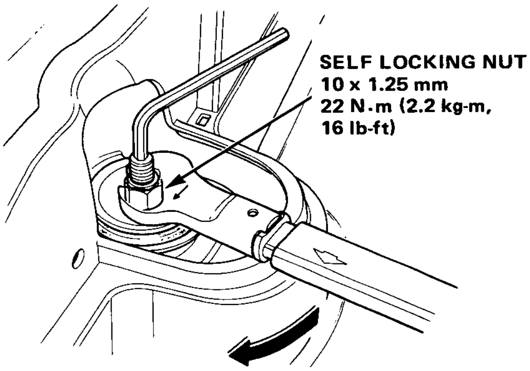
Installation

1. Fit the upper spring seat into the frame.
2. Install the damper protector on the damper unit, install the damper spring, and then temporarily tighten the damper at the near axle beam.



SELF LOCKING NUT
10 x 1.25 mm
22 N·m (2.2 kg-m, 16 lb-ft)
UPPER SPRING SEAT
DAMPER PROTECTOR
SELF LOCKING BOLT
10 x 1.25 mm
55 N·m (5.5 kg-m, 40 lb-ft)

3. Fit the inner damper mount cushion into the frame.
4. Jack up the axle beam so that the damper shaft fits into the hole in the frame.
5. Install the outer damper mount cushion and washer and then tighten the self locking nut.



SELF LOCKING NUT
10 x 1.25 mm
22 N·m (2.2 kg-m, 16 lb-ft)

6. Install the damper maintenance lid.
7. Tighten the damper on the rear axle beam.

NOTE: Tighten the rubber and bushing with the vehicle placed on the ground.

Brakes

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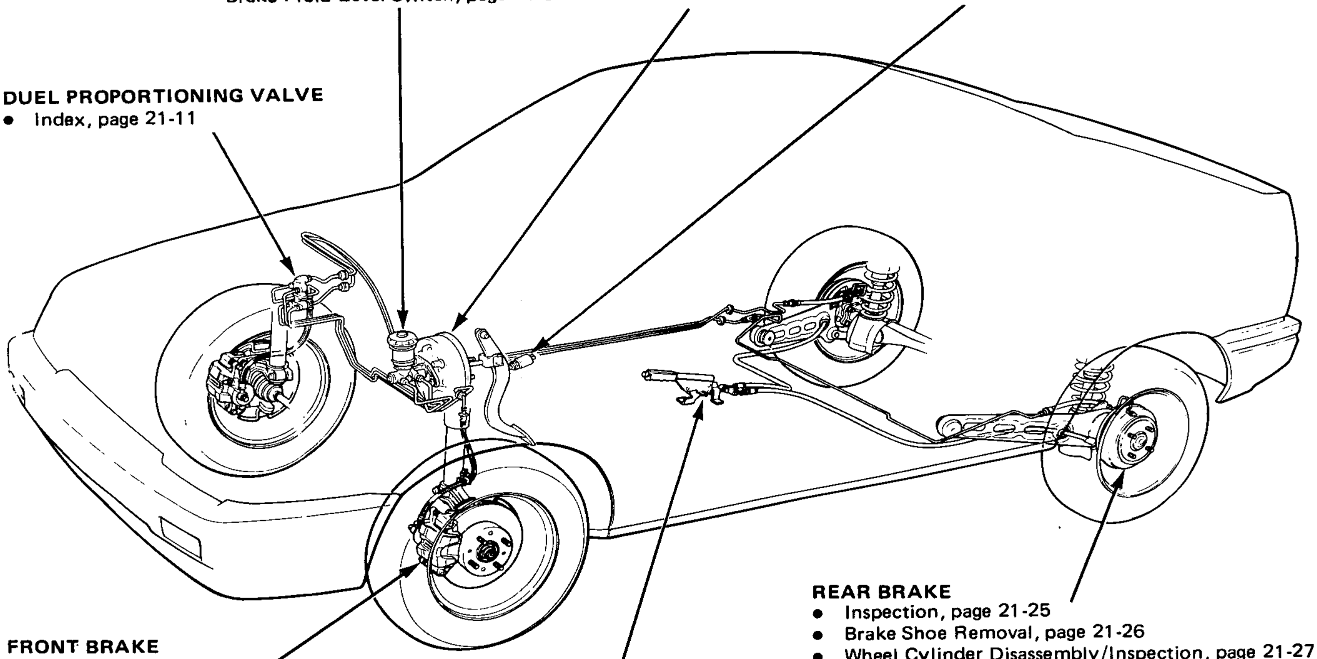

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PARKING BRAKE
- Adjustment, page 21-3
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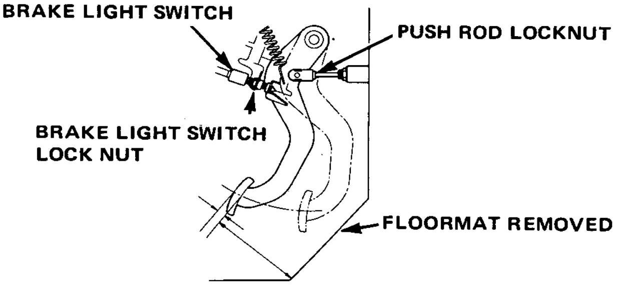
Pedal Height

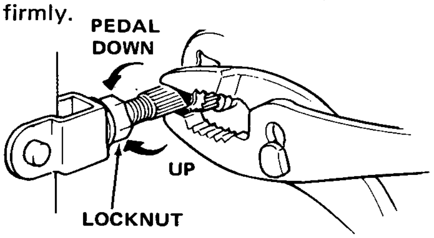
Adjustment

1. Loosen the brake light switch locknut and back off the brake light switch until it is no longer touching the brake pedal.

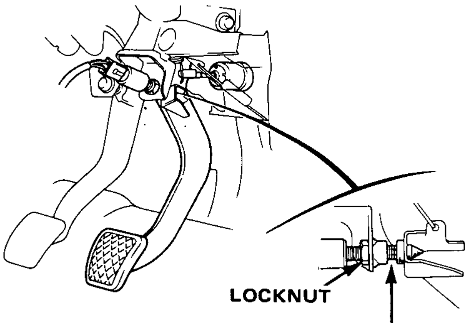


PEDAL PLAY 1–5 mm (1/16-13/64 in.)
PEDAL HEIGHT 174 mm (6. 27/32 in.)
4D H/B: 168mm (6.39/64 in.)

2. Loosen the pushrod locknut and screw the pushrod in or out with pliers until the pedal is 174 mm (6 27/32 in.), 4D H/B 168 mm (639/64 in.) from the floor. After the adjustment, tighten the locknut firmly.



3. Screw in the brake light switch until its plunger is fully depressed (threaded end touching the pad on the pedal arm). Then back off the switch 1/2 turn and tighten the locknut firmly.



Brake pedal play inspection:

Stop the engine and inspect the play by pushing the pedal by hand.
Brake pedal play: 1–5 mm (1/16-13/64 in.)

NOTE: Do not adjust the play with the pushrod pushed.

CAUTION: Check that the brake lights go off when the pedal is released.

Parking Brake

Adjustment

NOTE: After brake drum servicing, depress the brake pedal several times to set the self-adjusting brakes before adjusting brake cable.

WARNING Block the front wheels before jacking up the rear of the car.

1. Raise the rear wheels off the ground.

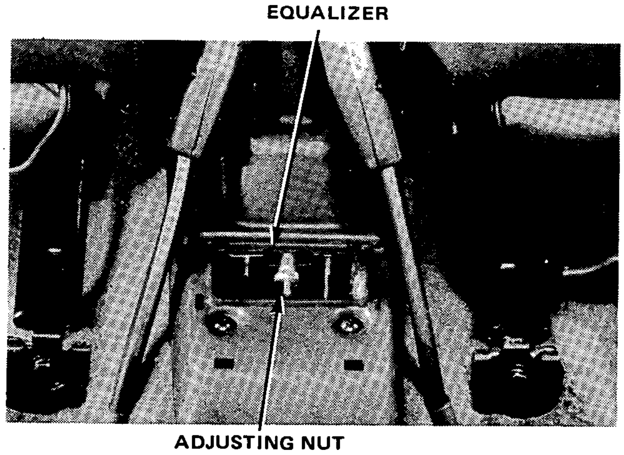
2. Loosen the equalizer adjusting nut in the console.

3. Pull the parking brake lever up one notch.

4. Tighten the equalizer adjusting nut until the rear wheels drag slightly when turned.

5. Release the brake lever and check that the rear wheels do not drag when turned. Readjust if necessary.

   NOTE: With the equalizer properly adjusted, the rear brakes should be fully applied when the parking brake lever is pulled up 4 to 8 clicks.



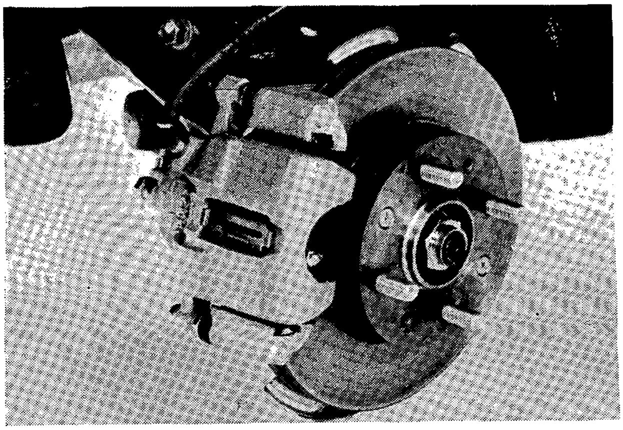
Front Brakes

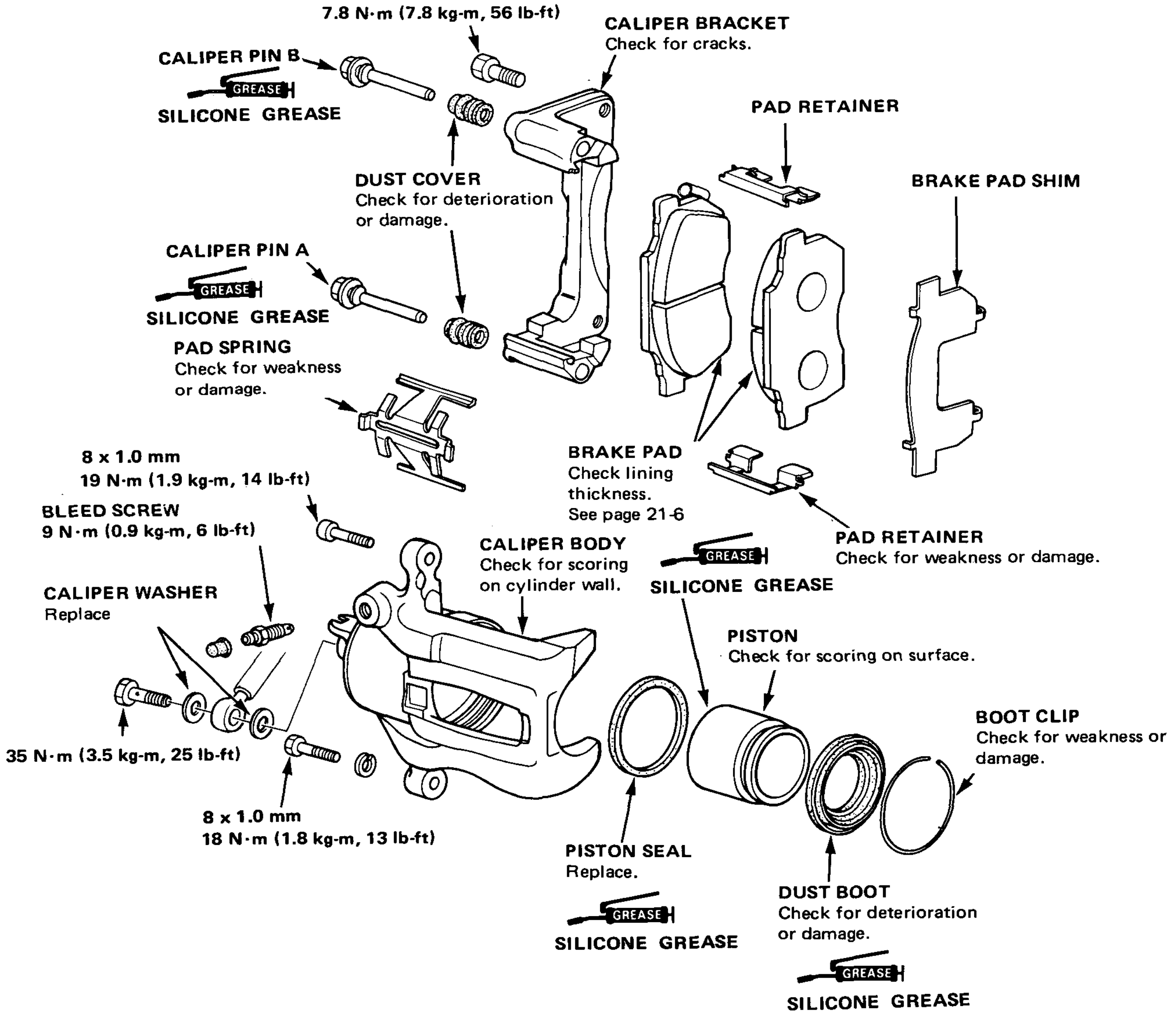
Index/Inspection

(NISSIN Model)

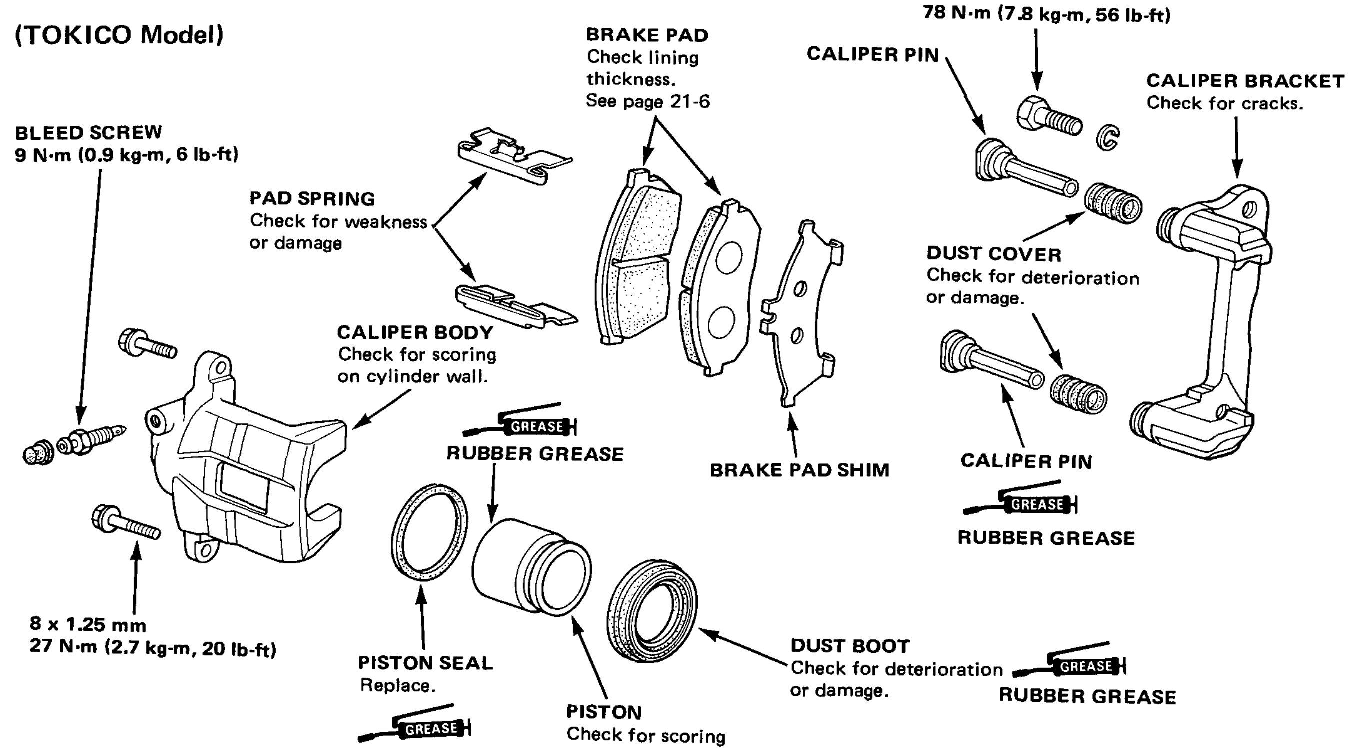
NOTE:

- Coat piston, piston seal, and caliper bore with silicone grease or rubber grease and clean brake fluid.
- Replace all rubber parts with new ones whenever disassembled.

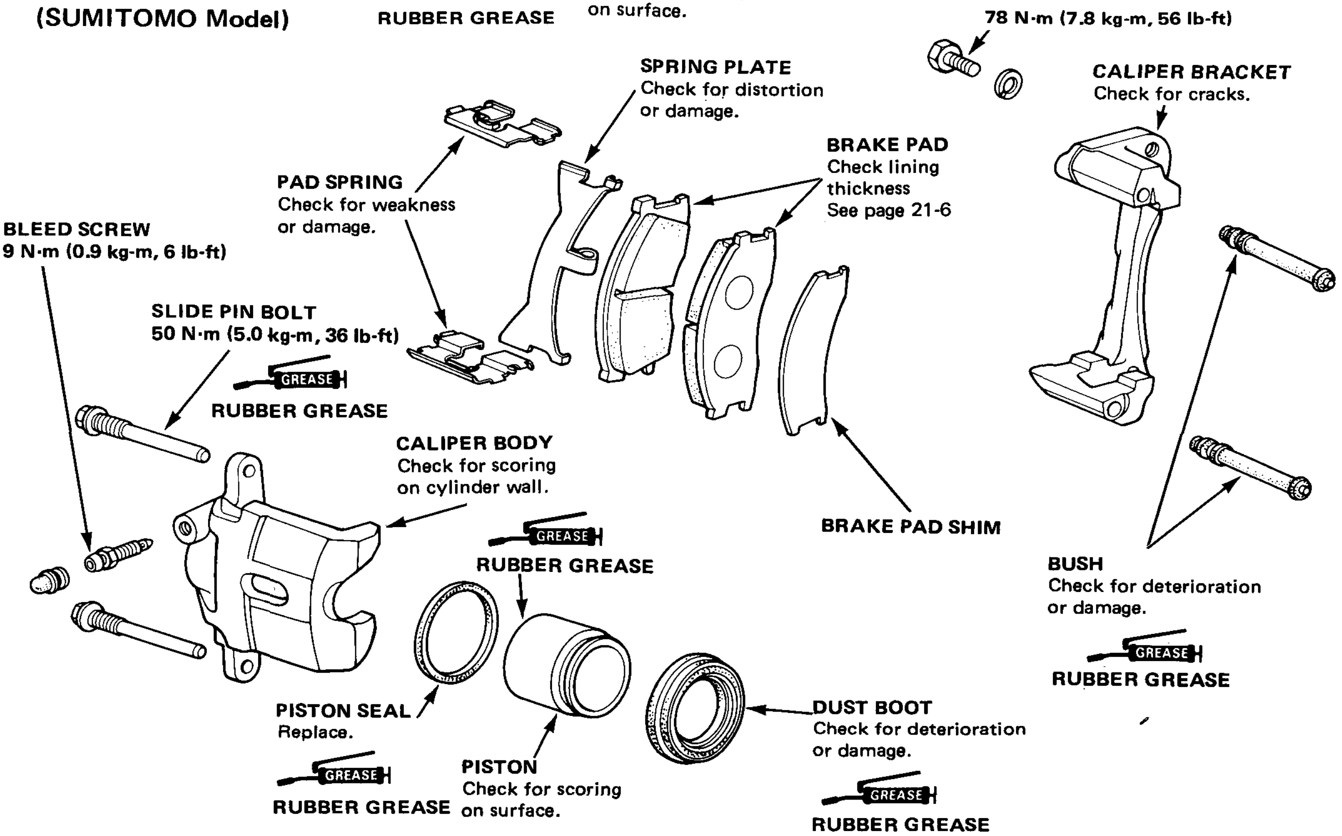



7.8 N·m (7.8 kg-m, 56 lb-ft)
CALIPER BRACKET
Check for cracks.
CALIPER PIN B
GREASE
SILICONE GREASE
PAD RETAINER
DUST COVER
Check for deterioration or damage.
BRAKE PAD SHIM
CALIPER PIN A
GREASE
SILICONE GREASE
PAD SPRING
Check for weakness or damage.
8 x 1.0 mm
19 N·m (1.9 kg-m, 14 lb-ft)
BRAKE PAD
Check lining thickness.
See page 21-6
BLEED SCREW
9 N·m (0.9 kg-m, 6 lb-ft)
CALIPER BODY
Check for scoring on cylinder wall.
GREASE
SILICONE GREASE
PAD RETAINER
Check for weakness or damage.
CALIPER WASHER
Replace
PISTON
Check for scoring on surface.
BOOT CLIP
Check for weakness or damage.
35 N·m (3.5 kg-m, 25 lb-ft)
8 x 1.0 mm
18 N·m (1.8 kg-m, 13 lb-ft)
PISTON SEAL
Replace.
GREASE
SILICONE GREASE
DUST BOOT
Check for deterioration or damage.
GREASE
SILICONE GREASE

(TOKICO Model)


BRAKE PAD
Check lining thickness.
See page 21-6
78 N·m (7.8 kg-m, 56 lb-ft)
CALIPER PIN
CALIPER BRACKET
Check for cracks.
BLEED SCREW
9 N·m (0.9 kg-m, 6 lb-ft)
PAD SPRING
Check for weakness or damage
DUST COVER
Check for deterioration or damage.
CALIPER BODY
Check for scoring on cylinder wall.
GREASE
RUBBER GREASE
BRAKE PAD SHIM
CALIPER PIN
GREASE
RUBBER GREASE
8 x 1.25 mm
27 N·m (2.7 kg-m, 20 lb-ft)
DUST BOOT
Check for deterioration or damage.
GREASE
RUBBER GREASE
PISTON SEAL
Replace.
GREASE
RUBBER GREASE
PISTON
Check for scoring on surface.

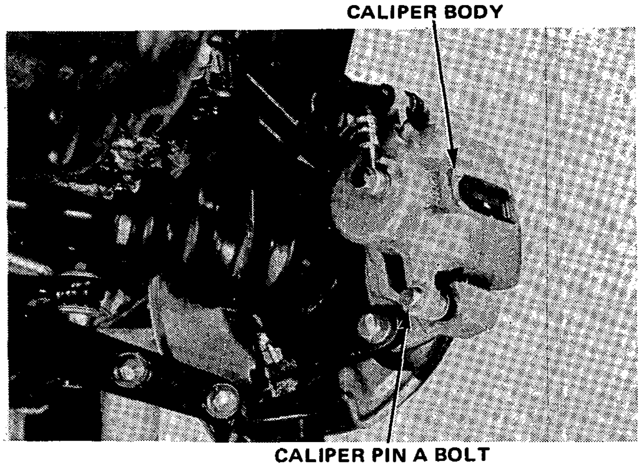
(SUMITOMO Model)


78 N·m (7.8 kg-m, 56 lb-ft)
SPRING PLATE
Check for distortion or damage.
CALIPER BRACKET
Check for cracks.
BRAKE PAD
Check lining thickness
See page 21-6
PAD SPRING
Check for weakness or damage.
BLEED SCREW
9 N·m (0.9 kg-m, 6 lb-ft)
SLIDE PIN BOLT
50 N·m (5.0 kg-m, 36 lb-ft)
GREASE
RUBBER GREASE
CALIPER BODY
Check for scoring on cylinder wall.
GREASE
RUBBER GREASE
BRAKE PAD SHIM
BUSH
Check for deterioration or damage.
GREASE
RUBBER GREASE
PISTON SEAL
Replace.
DUST BOOT
Check for deterioration or damage.
GREASE
RUBBER GREASE
PISTON
Check for scoring on surface.
GREASE
RUBBER GREASE

Brake Pad

Inspection/Replacement

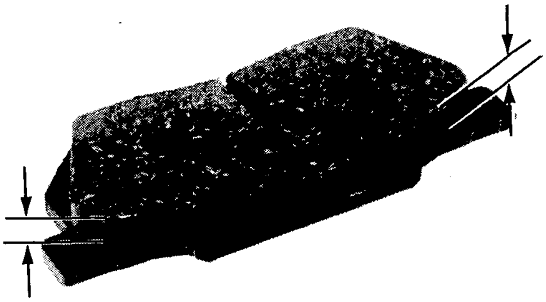
1. Remove the front wheels and support the front of car on safety stands.
2. Remove caliper pin A bolt and pivot caliper up out of the way.



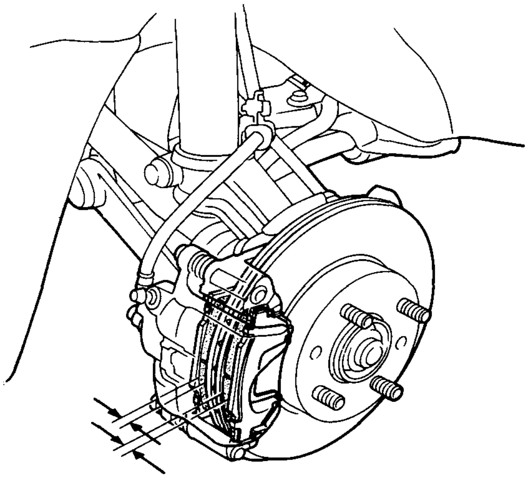
3. Remove the pad shim and pads.
4. Using a vernier caliper, measure the thickness of each brake pad lining.

Brake Pad Thickness

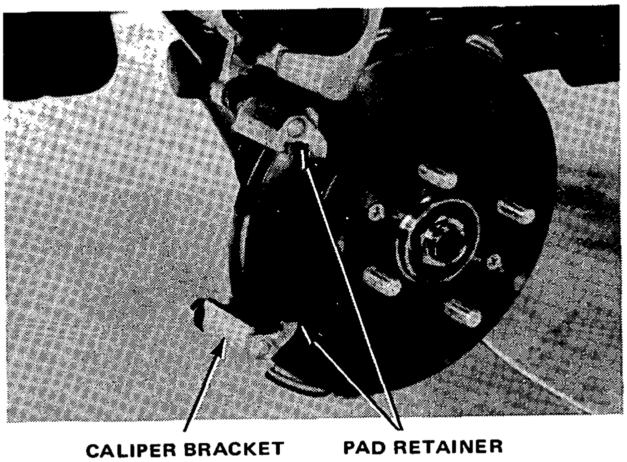
Standard: **4D H/B EC and KX 10.0 mm (0.39 in.)**
Other models 9.5 mm (0.374 in.)
Service limit: **3.0 mm (0.118 in.)**



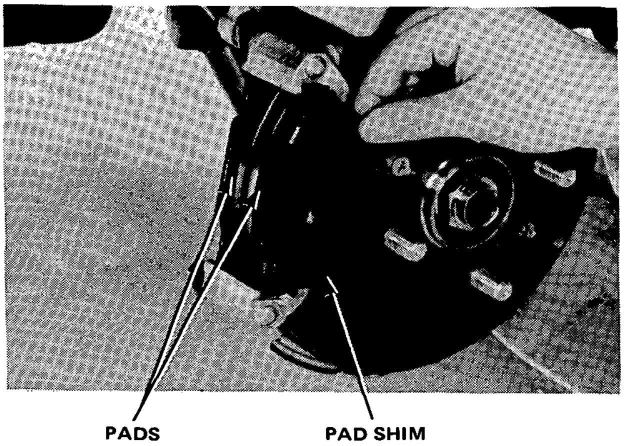
5. If lining thickness is less than service limit, replace both pads as a set.



6. Clean the caliper thoroughly; remove any rust, and check for grooves or cracks.
7. Install the pad retainers.



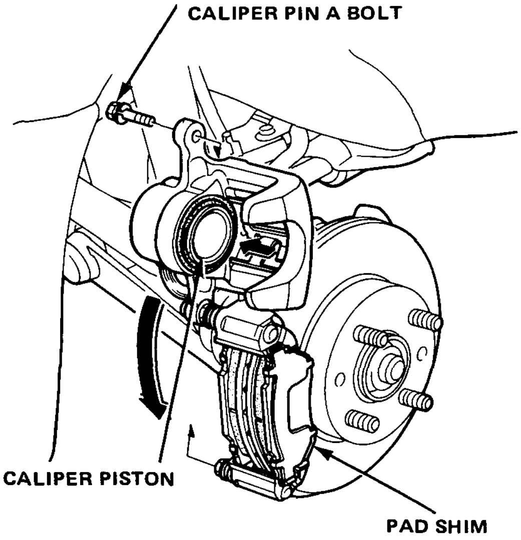
8. Apply a thin coat of high temperature brake grease between the shim and the pad, then install them with the shim on the outside.


PADS
PAD SHIM

9. Loosen the bleed screw slightly and push in the piston so the caliper will fit over the pads. Tighten the bleed screw.

10. Pivot the caliper down into position, then reinstall the caliper pin A bolt and tighten to 18 N·m (1.8 kg-m, 13 lb-ft).

    NOTE: Install the inner pad with pad wear indicator on the inside. (KC Only)


CALIPER PIN A BOLT
CALIPER PISTON
PAD SHIM

Depress the brake pedal several times to make sure the brakes are working, then road test.

Disassembly

Disassembly

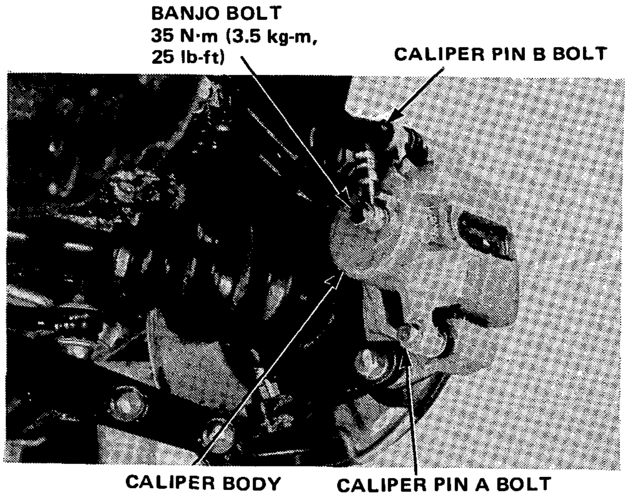
1. Unscrew the banjo bolt and remove the brake line.

2. Remove the caliper pin bolts, then remove the caliper.

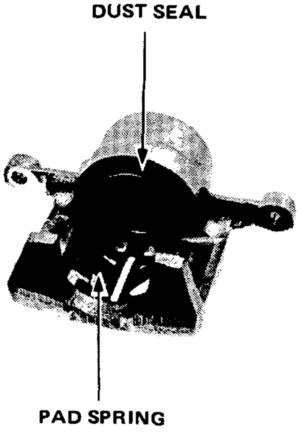
   NOTE: Avoid damaging the splash guard at the upper part of the caliper.

CAUTION:

- **Avoid spilling brake fluid on paint as it may damage the finish.**
- **Plug the end of the brake hose with a shop rag to prevent brake fluid from flowing out of the brake hose after disconnecting.**


BANJO BOLT
35 N·m (3.5 kg-m,
25 lb-ft)
CALIPER PIN B BOLT
CALIPER BODY
CALIPER PIN A BOLT

3. Remove the boot clip (NISSIN Model), dust seal and pad spring.


DUST SEAL
PAD SPRING

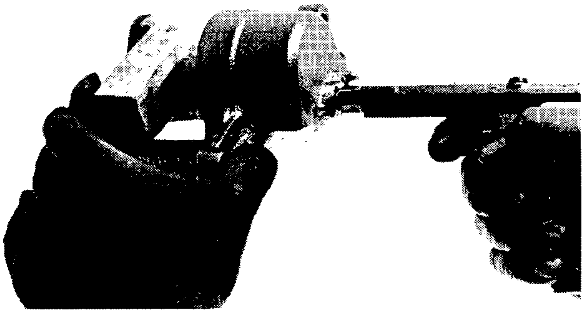
(cont'd)

Brake Caliper

Disassembly (cont'd)

4. Place a shop rag in the caliper opposite the piston, then carefully remove the piston from the caliper by applying air pressure through the brake line hole.

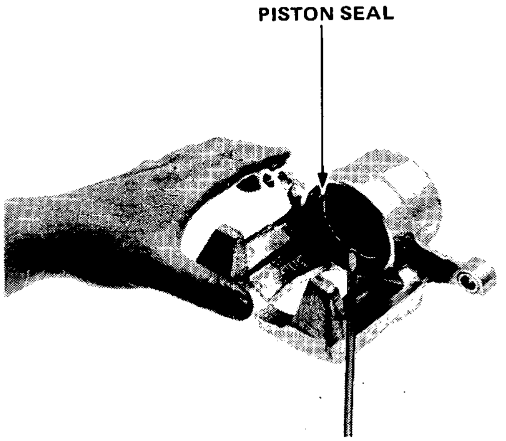
- **Do not place your fingers in front of the piston.**
- **Do not use high air pressure; use an OSHA-approved 30 PSI nozzle.**



5. Remove the piston seal.

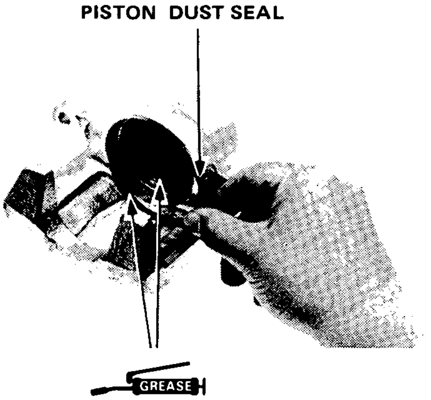
   CAUTION: Take care not to damage the cylinder bore.

6. Clean the piston and cylinder bore with brake fluid and then inspect the sliding surfaces for wear or damage.

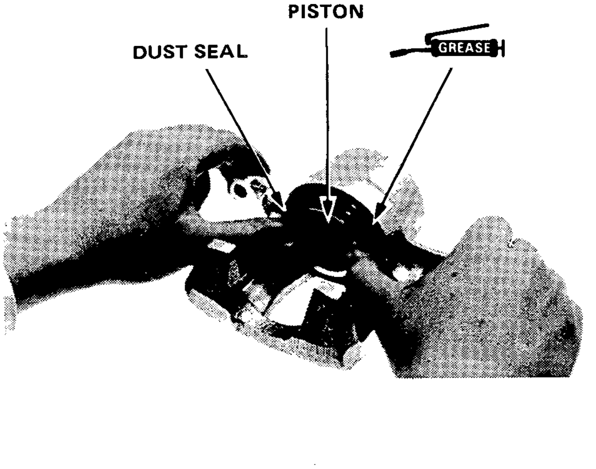


Reassembly

1. Clean the piston and cylinder bore with brake fluid and inspect for wear or damage.
2. Apply brake fluid to a new piston seal, then install piston seal in cylinder groove.



3. Lube the piston with brake fluid, then slip the boot onto the groove-less end of the piston.
4. Hold the piston slightly above the caliper, then gently guide the bottom ridge of the boot into the caliper wall.

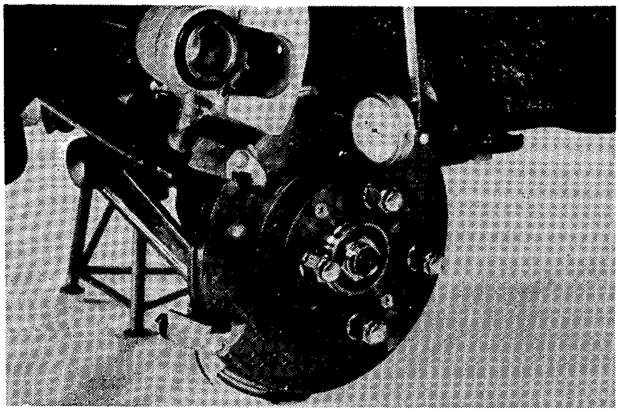


5. When the boot is evenly seated, push the piston until the upper ridge of the boot is seated in the piston groove.
6. Install the boot clip. (NISSIN Model Only)

Front Brake Disc

Run-Out

1. Remove the front wheels and support the front of car with safety stands.
2. Remove caliper pin A bolt, then pivot the caliper up out of the way on the upper guide pin bolt, and remove the pads and pad retainers (page 21-6).



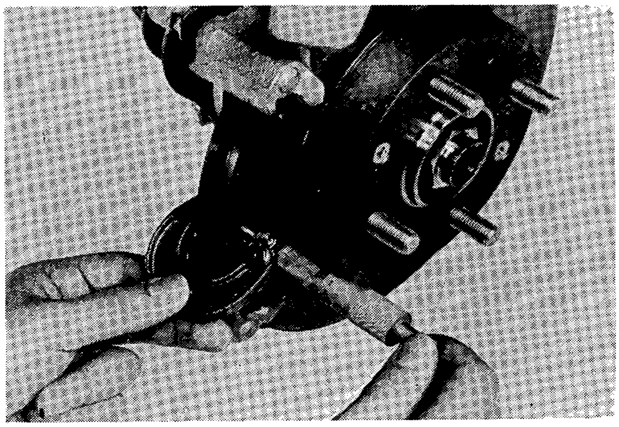
3. Inspect the disc surface for grooves, cracks, and rust. Clean the disc thoroughly and remove all rust.
4. Use the lug nuts to hold the disc securely against the hub, then mount a dial indicator 10 mm (0.39 in.) in from the outer edge.
   - Check the runout while turning the disc slowly by hand.

   Brake Disc Runout:
   Service Limit: **0.10 mm (0.004 in.)**

5. If the disc is beyond the service limit, refer to the Honda Brake Disc Grinder Manual to see if it can be ground. If it can't be ground, remove it and install a new one. Then, reinstall the caliper bracket and torque the bolts to 78 N·m (7.8 kg-m, 56 lb-ft).

Thickness and Parallelism

1. Remove the front wheels and support the front of car with safety stands.
2. Move the caliper and pads out of the way as described in the preceding column.
3. Using a micrometer, measure disc thickness at eight points, approximately 45° apart and 10 mm (0.39 in.) in from the outer edge of the disc.



Brake Disc Thickness

Standard:	**12 mm (0.47 in)**
Max. Refinishing Limit:	**10 mm (0.39 in)**

Ventilatad Disk

Standard:	**17 mm (0.67 in)**
Max. Refinishing Limit:	**15 mm (0.59 in)**

NOTE: If the refinishing limit stamped on the disc does not match the one listed above, use the one on the disc.

Brake Disc Parallelism:
The difference between any thickness measurements should not be more than 0.015 mm (0.0006 in.).

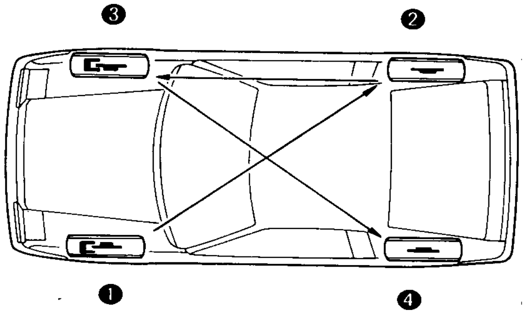
4. If the disc is beyond the limits for parallelism, refer to the Honda Brake Disc Grinder Manual to see if it can be ground. If it can't be ground, remove it and install a new one. Then, reinstall the caliper bracket and torque the bolts to 78 N·m (7.8 kg-m, 56 lb-ft).

Bleeding

NOTE: The reservoir on the master cylinder must be full at the start of bleeding procedure and checked after bleeding each wheel cylinder. Add fluid as required. Use only DOT 3 or 4 brake fluid.

- Make sure no dirt or other foreign matter is alowed to contaminate the brake fluid.
- Avoid spilling brake fluid on painted surfaces as it can damage the finish. Wash spilled brake fluid off immediately with clean water.

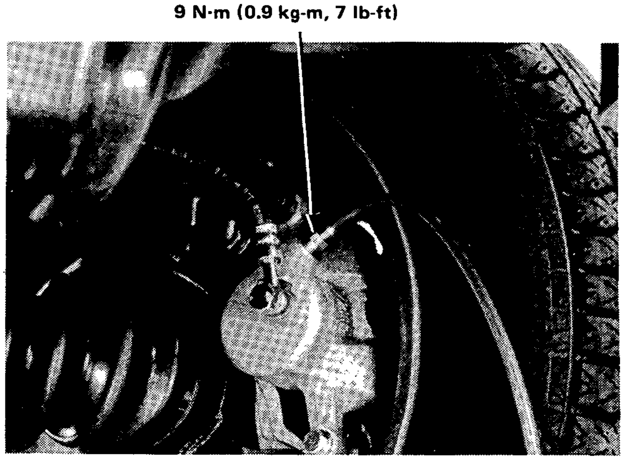
Bleeding Sequence



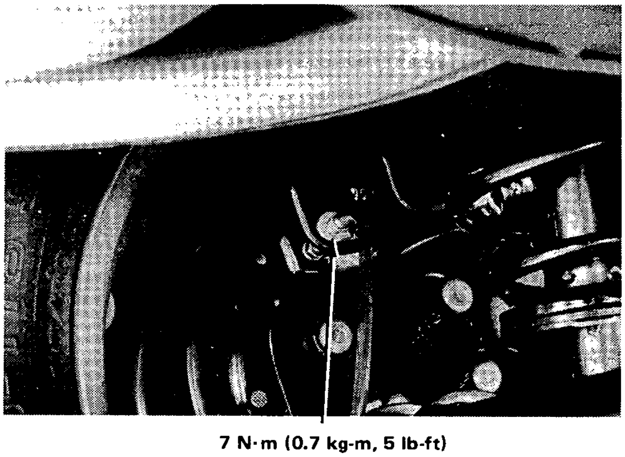
1. Have someone slowly pump the brake pedal several times, then apply steady pressure.

2. Loosen the brake bleed screw to allow air to escape from the system.

FRONT



REAR

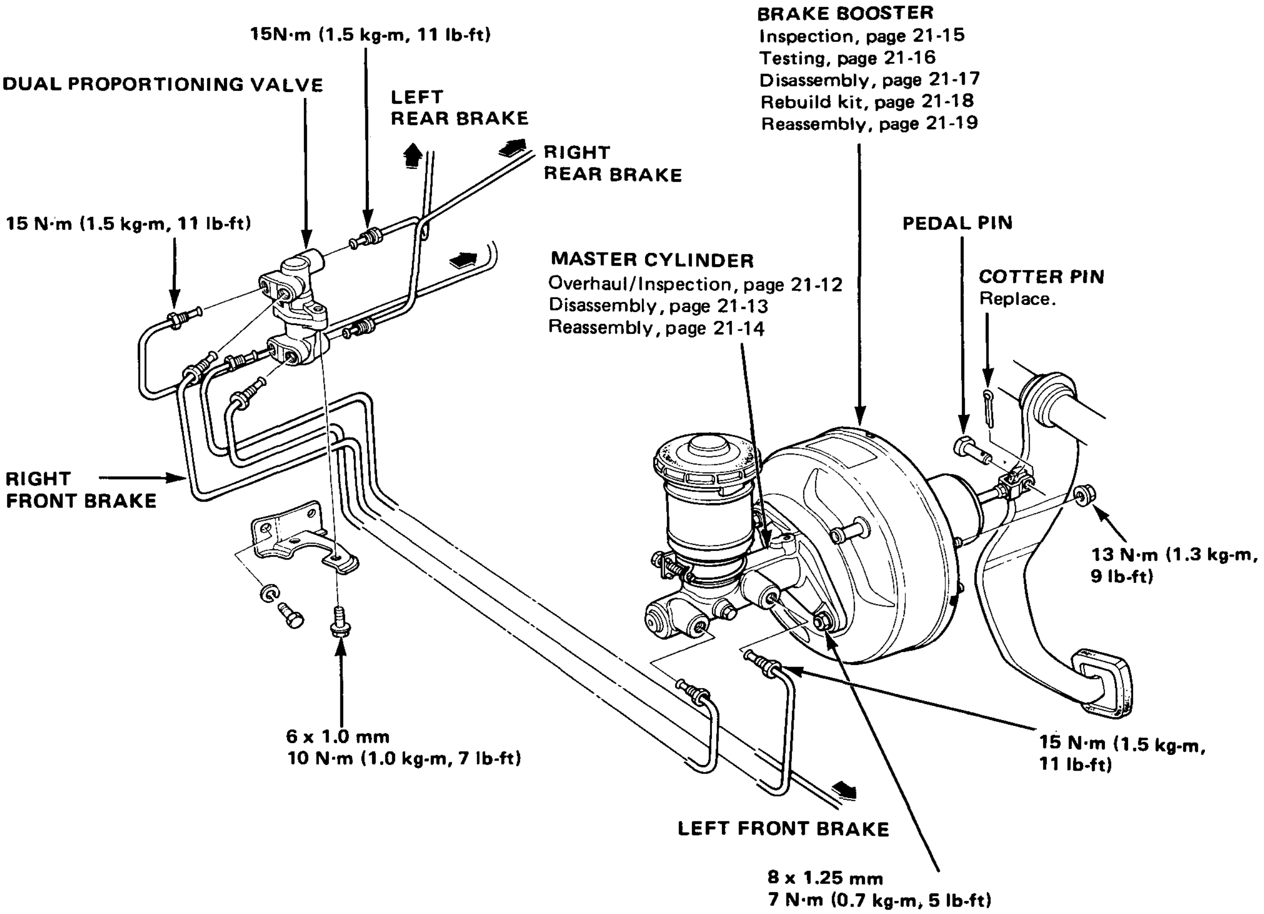


3. Repeat the procedure for each wheel in the sequence shown above. When air bubbles no longer appear in the fluid, tighten the bleed screw securely.

4. Check brake performance by road testing.

Brake Booster, Master Cylinder, Proportioning Valve

Index



15N·m (1.5 kg-m, 11 lb-ft)
DUAL PROPORTIONING VALVE
LEFT REAR BRAKE
RIGHT REAR BRAKE
15 N·m (1.5 kg-m, 11 lb-ft)
RIGHT FRONT BRAKE
6 x 1.0 mm
10 N·m (1.0 kg-m, 7 lb-ft)
BRAKE BOOSTER
Inspection, page 21-15
Testing, page 21-16
Disassembly, page 21-17
Rebuild kit, page 21-18
Reassembly, page 21-19
PEDAL PIN
COTTER PIN
Replace.
MASTER CYLINDER
Overhaul/Inspection, page 21-12
Disassembly, page 21-13
Reassembly, page 21-14
13 N·m (1.3 kg-m, 9 lb-ft)
15 N·m (1.5 kg-m, 11 lb-ft)
LEFT FRONT BRAKE
8 x 1.25 mm
7 N·m (0.7 kg-m, 5 lb-ft)

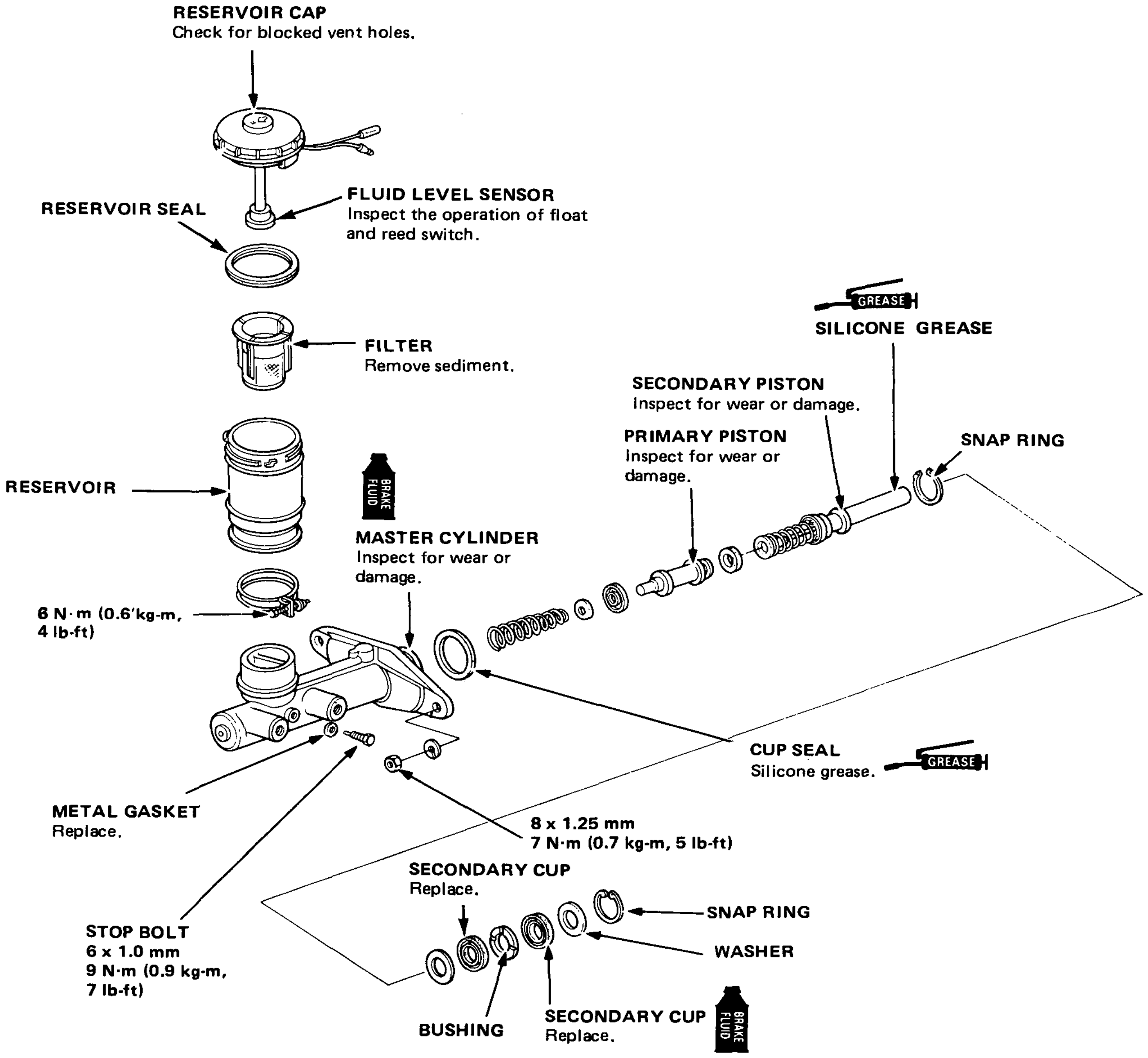
Master Cylinder

Overhaul/Inspection

NOTE: Use only new replacement parts.

CAUTION:

- BRAKE FLUID **This symbol represents brake fluid. Use only DOT 3 or 4 brake fluid.**


RESERVOIR CAP
Check for blocked vent holes.
RESERVOIR SEAL
FLUID LEVEL SENSOR
Inspect the operation of float and reed switch.
GREASE
SILICONE GREASE
FILTER
Remove sediment.
SECONDARY PISTON
Inspect for wear or damage.
PRIMARY PISTON
Inspect for wear or damage.
SNAP RING
RESERVOIR
BRAKE FLUID
MASTER CYLINDER
Inspect for wear or damage.
6 N·m (0.6 kg-m, 4 lb-ft)
CUP SEAL
Silicone grease.
GREASE
METAL GASKET
Replace.
8 x 1.25 mm
7 N·m (0.7 kg-m, 5 lb-ft)
SECONDARY CUP
Replace.
SNAP RING
WASHER
STOP BOLT
6 x 1.0 mm
9 N·m (0.9 kg-m, 7 lb-ft)
BUSHING
SECONDARY CUP
Replace.
BRAKE FLUID

Disassembly

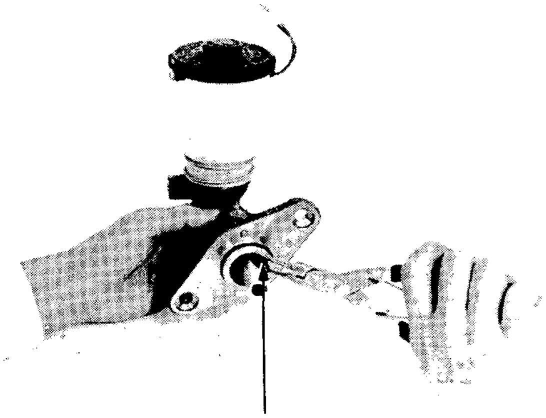
CAUTION:

- **Avoid spilling brake fluid on painted surfaces as it can damage the finish. Wash spilled brake fluid off immediately with clean water.**

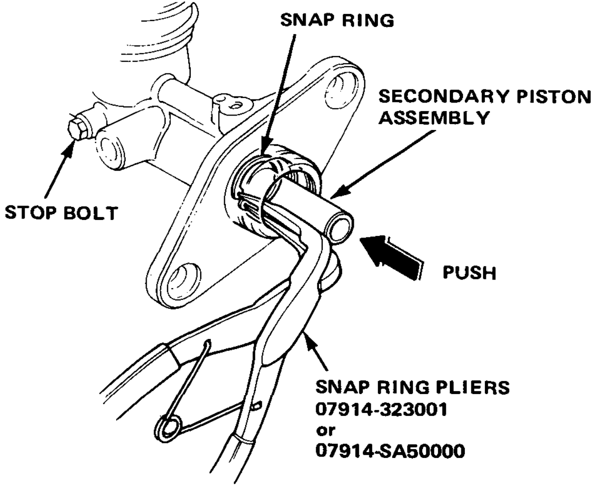
NOTES:

- Wash all removed parts in brake fluid and blow dry with compressed air. Blow open all passages and fluid ports.
- Replace all rubber parts with new ones whenever the cylinder is disassembled.
- To prevent damage, liberally apply clean brake fluid to the piston cups before installation.

1. Remove the outer snap ring.



2. Remove the washer, secondary cup, and secondary piston bushing.
3. Remove the stop bolt, and remove the inner snap ring with the snap ring pliers while pushing on the secondary piston assy.

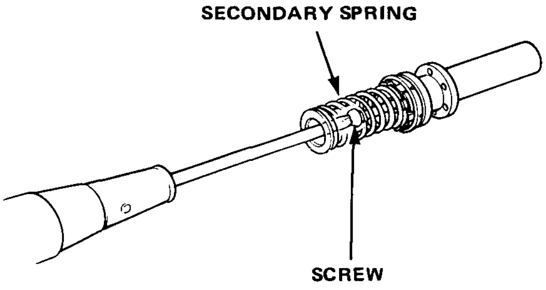

SNAP RING
SECONDARY PISTON ASSEMBLY
STOP BOLT
PUSH
SNAP RING PLIERS
07914-323001
or
07914-SA50000

NOTE: Avoid damaging the master cylinder wall.

4. Remove the primary piston assembly. If necessary, remove by blowing compressed air through the primary piston hole.

   NOTE: Wrap a shop rag around the open end of the cylinder before using compressed air.

5. Remove the screw from the secondary piston assy, and remove the secondary spring.


SECONDARY SPRING
SCREW

6. Clean all parts thoroughly with BRAKE FLUID only.

Master Cylinder

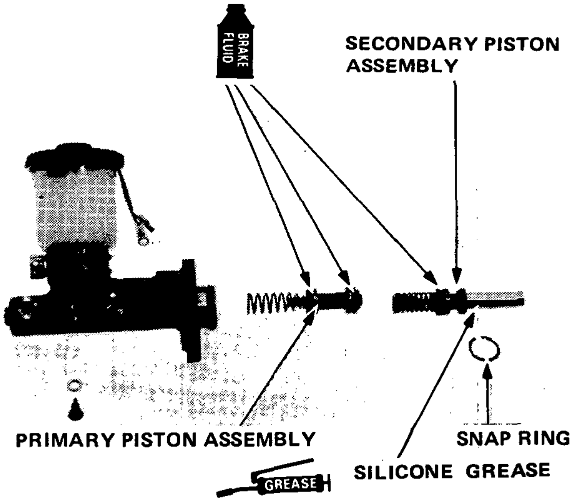
Reassembly

CAUTION:

- **Make sure all parts are clean before installation.**
- **Use only new replacement parts.**
- **Use only new clean brake fluid.**
  Do not allow dirt or other foreign matter to contaminate the brake fluid.
- **Do not mix different brands of brake fluid.**
- **Avoid spilling brake fluid on painted surfaces as it can damage the finish. Wash spilled brake fluid off immediately with clean water.**

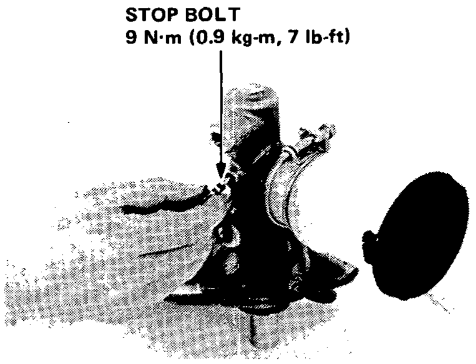
1. Lubricate new piston assemblies with brake fluid, then install in the master cylinder.

   NOTE: To ease assembly, rotate the pistons while inserting.


BRAKE FLUID
SECONDARY PISTON ASSEMBLY
PRIMARY PISTON ASSEMBLY
SNAP RING
GREASE
SILICONE GREASE

2. Press down on the cylinder as shown, then install the stop bolt.

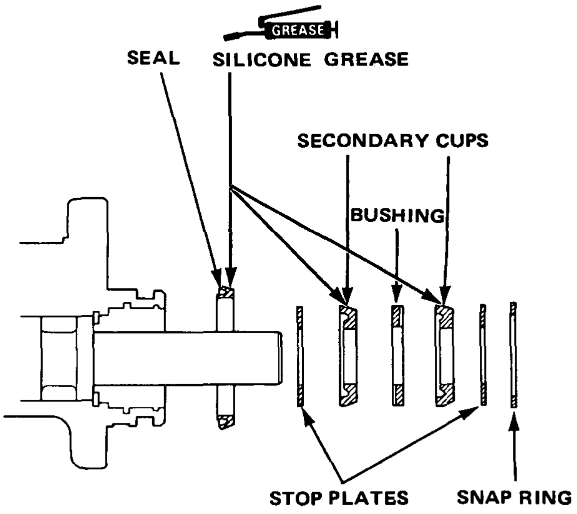
   NOTE: Replace the piston stop bolt metal gasket with a new one.


STOP BOLT
9 N·m (0.9 kg-m, 7 lb-ft)

3. Turn the master cylinder over, press down on the secondary piston, then install the inner snap ring.

4. Install the secondary cups, bushing, and outer snap ring.

5. Install the seal on the master cylinder mounting flange.


GREASE
SEAL
SILICONE GREASE
SECONDARY CUPS
BUSHING
STOP PLATES
SNAP RING

NOTE: Make sure the seal and cups are installed facing the direction shown.

Brake Booster

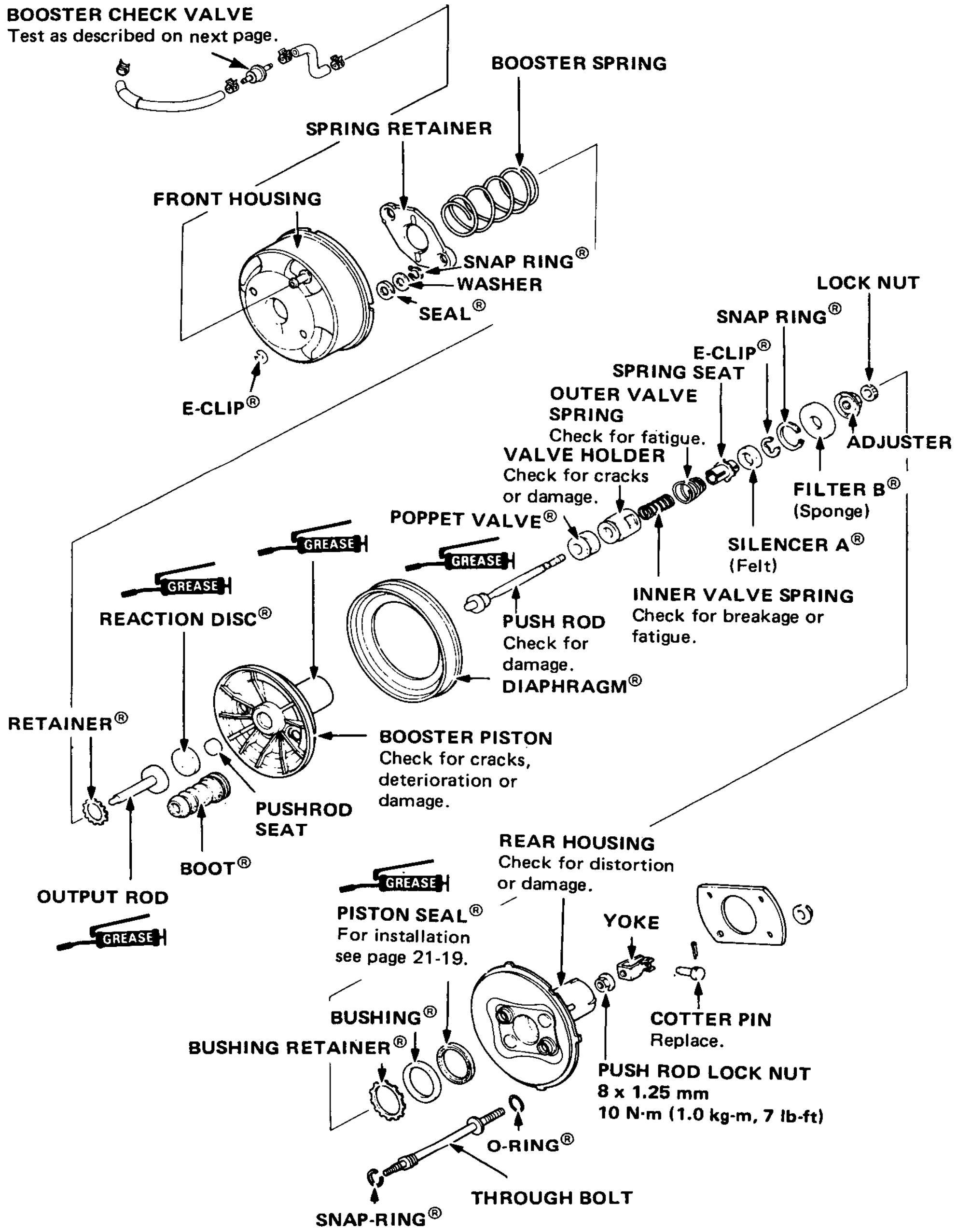
Index and Inspection

Booster testing is on next page.

NOTE:

- Parts marked® are available with rebuild kit and must be replaced whenever disassembled.
- GREASE on this page refers to silicon grease.

NOTE: Scribe an alignment mark across the front and rear housings so you can reassemble them in their original positions.


BOOSTER CHECK VALVE
Test as described on next page.
BOOSTER SPRING
SPRING RETAINER
FRONT HOUSING
SNAP RING®
WASHER
SEAL®
E-CLIP®
LOCK NUT
SNAP RING®
E-CLIP®
SPRING SEAT
OUTER VALVE SPRING
Check for fatigue.
VALVE HOLDER
Check for cracks or damage.
ADJUSTER
FILTER B®
(Sponge)
POPPET VALVE®
SILENCER A®
(Felt)
GREASE
GREASE
GREASE
REACTION DISC®
INNER VALVE SPRING
Check for breakage or fatigue.
PUSH ROD
Check for damage.
DIAPHRAGM®
RETAINER®
BOOSTER PISTON
Check for cracks, deterioration or damage.
PUSHROD SEAT
BOOT®
OUTPUT ROD
GREASE
REAR HOUSING
Check for distortion or damage.
GREASE
PISTON SEAL®
For installation see page 21-19.
YOKE
COTTER PIN
Replace.
BUSHING®
BUSHING RETAINER®
PUSH ROD LOCK NUT
8 x 1.25 mm
10 N·m (1.0 kg-m, 7 lb-ft)
O-RING®
THROUGH BOLT
SNAP-RING®

Brake Booster

Testing

Functional Test

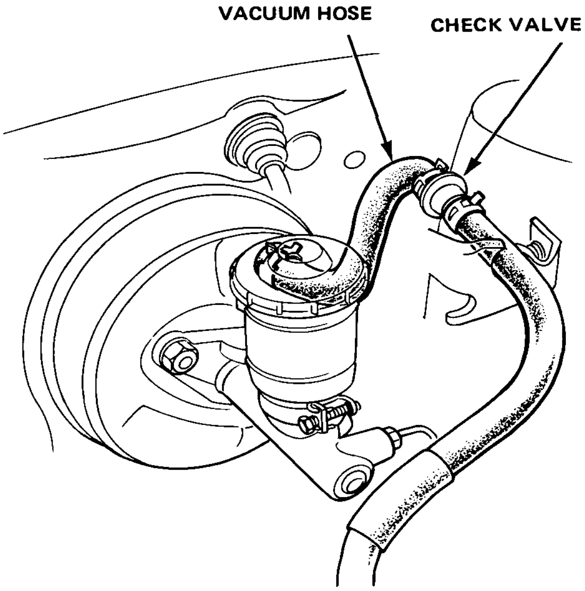
1. With the engine off, depress the brake pedal several times, then depress the pedal hard and hold that pressure for 15 seconds. If the pedal sinks, a brake line, a wheel cylinder, or the master cylinder is faulty.
2. Start the engine with the pedal depressed. If the pedal sinks slightly, the vacuum booster is working. If the pedal height does not vary, the booster or check valve is faulty.

Leak Test

1. Depress the brake pedal with the engine running, then stop the engine. If the pedal height does not vary while depressed for 30 seconds, the vacuum booster is OK. If the pedal rises, the booster is faulty.
2. With the engine off, depress the brake pedal several times, using normal pressure. When the pedal is first depressed, it should be low. On consecutive applications, pedal height should gradually rise. If the pedal position does not vary, check the booster check valve.

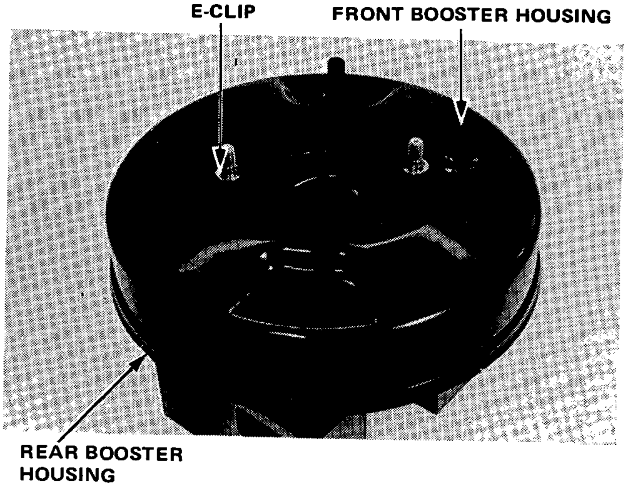
Check Valve Test

1. Disconnect the brake booster vacuum hose at the booster.
2. Start the engine and let it idle. There should be vacuum available. If no vacuum is available, the check valve is not working correctly.
   Replace the check valve and retest.

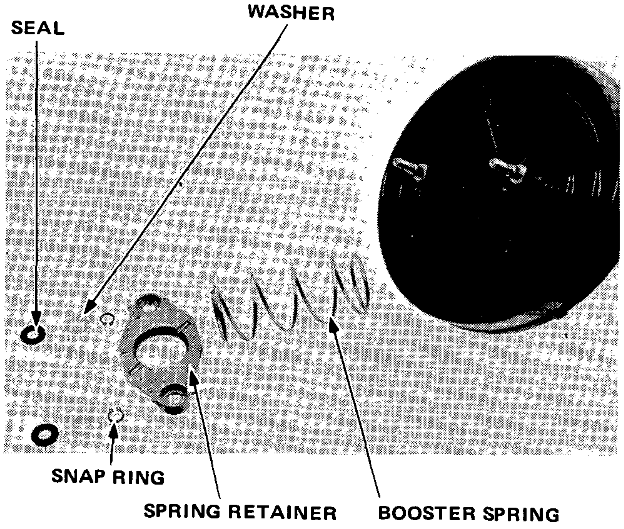


Disassembly

1. Scribe an aligning mark across the front and rear booster housings to ensure proper positioning of parts on reassembly.
2. Remove the master cylinder.
3. Remove the E-clips, and separate the front booster housing and the rear booster housing.

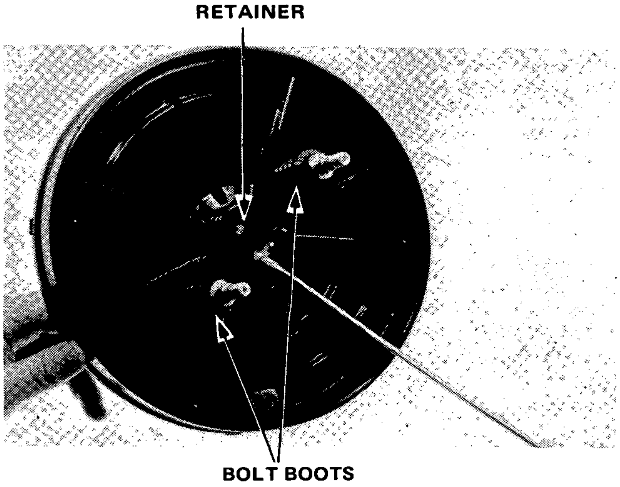

E-CLIP
FRONT BOOSTER HOUSING
REAR BOOSTER HOUSING

4. Remove the washers and seals from the rear housing, then remove the snap ring.

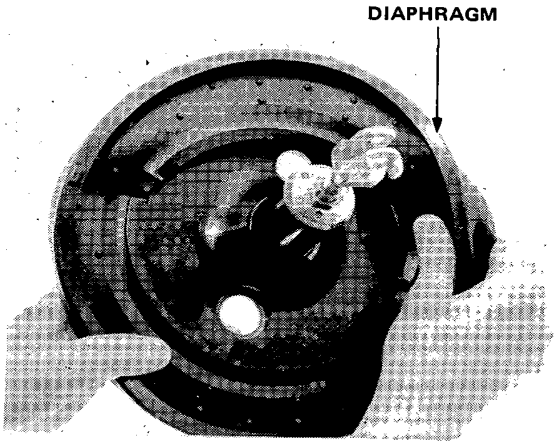

SEAL
WASHER
SNAP RING
SPRING RETAINER
BOOSTER SPRING

5. Remove the spring retainer and booster spring.

6. Remove the retainer and the through bolt boots.


RETAINER
BOLT BOOTS

7. Remove the diaphgram from the rear housing.



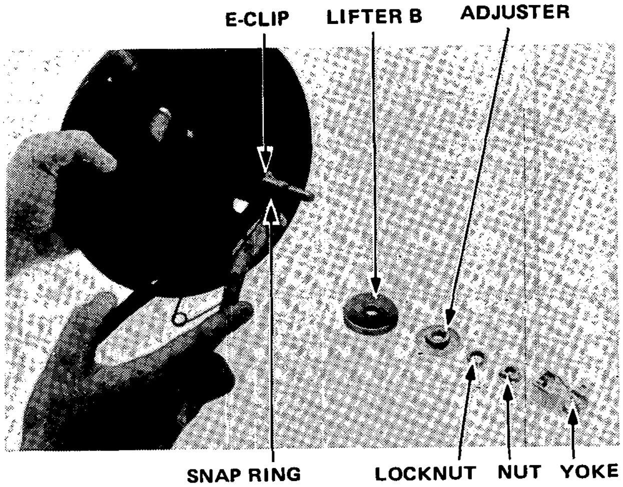
(cont'd)

Brake Booster

Disassembly (cont'd)

8. Remove the yoke, push rod locknut, star locknut, adjuster and filter.

9. Remove the snap ring, then remove the valve holder assembly.


E-CLIP
LIFTER B
ADJUSTER
SNAP RING
LOCKNUT
NUT
YOKE

Remove the E-clip from the valve holder assembly and disassemble.

Rebuild Kit

E-CLIP

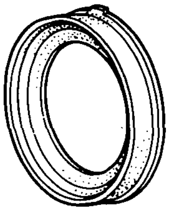
SEAL

SNAP RING

RETAINER

REACTION SIDC

BOOT


DIAPHRAGM

POPPET VALVE

SILENCER A (Felt)

E-CLIP

FILTER B (Sponge)

SNAP RING

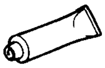
RETAINER

BUSHING

PISTON SEAL

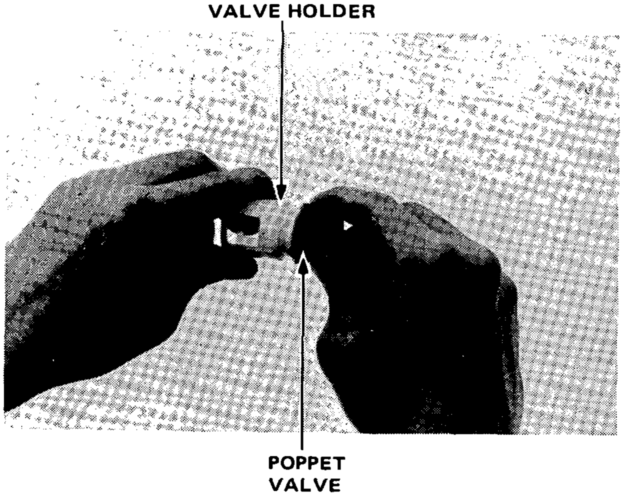
SNAP RING

O-RING

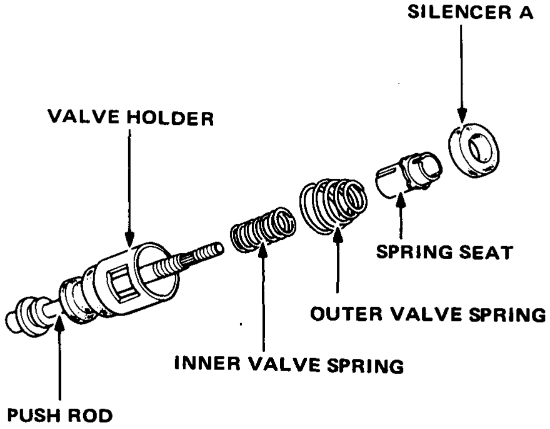

SILICONE GREASE

Reassembly

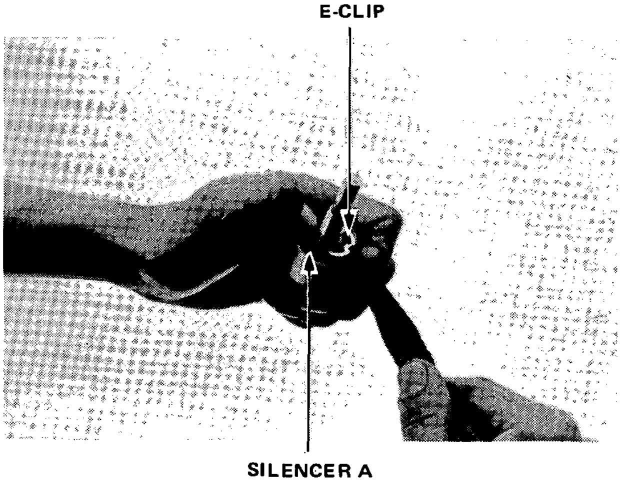
1. Install the poppet valve on the valve holder.


VALVE HOLDER
POPPET VALVE

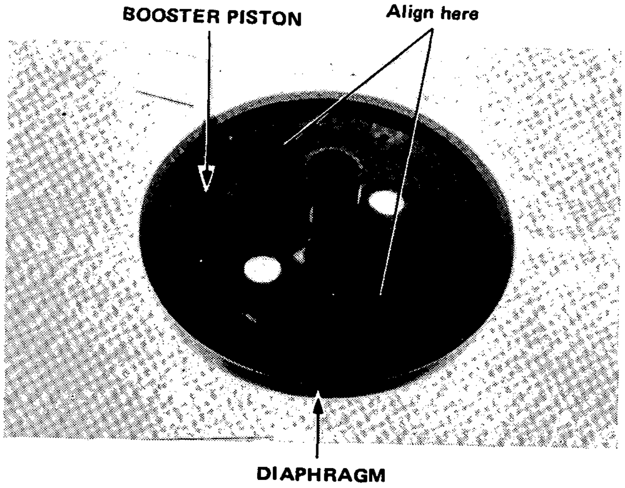
2. Install the valve holder, inner valve spring, outer valve spring, and spring seat onto the push rod.


SILENCER A
VALVE HOLDER
SPRING SEAT
OUTER VALVE SPRING
INNER VALVE SPRING
PUSH ROD

3. Install the silencer with the E-clip.


E-CLIP
SILENCER A

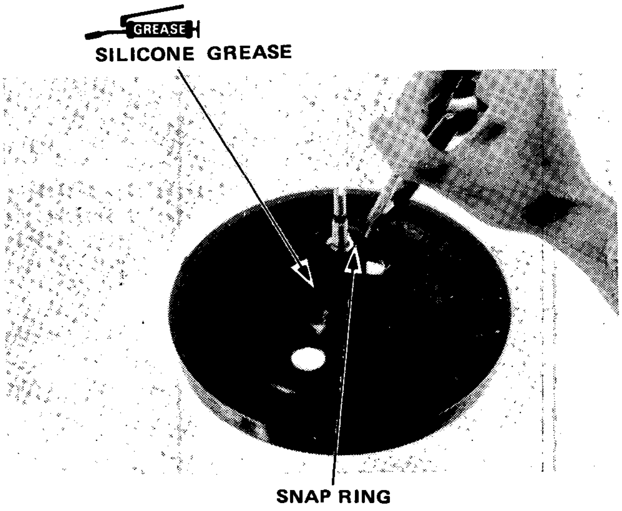
4. Install the diaphragm onto the booster piston with the diaphragm tabs aligned with the slots in the piston.


BOOSTER PISTON
Align here
DIAPHRAGM

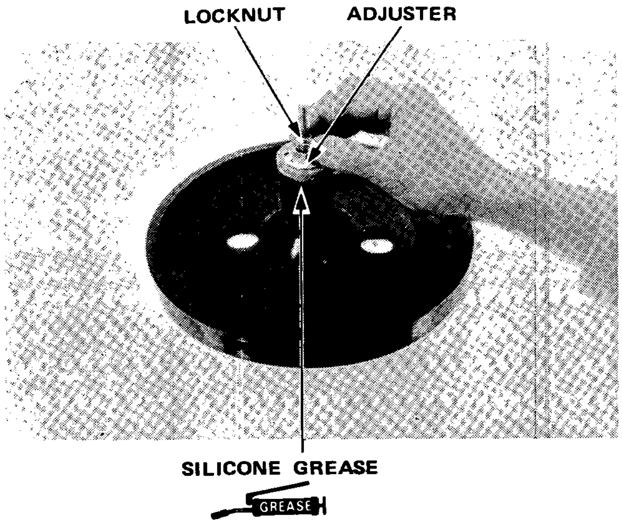
Reassembly(cont'd)

5. Apply silicone grease to the inner and outer surfaces of the piston tube.

   Press the valve holder assembly into the booster piston tube, and install the snap ring.


GREASE
SILICONE GREASE
SNAP RING

6. Slip the filter (foam) over the end of the pushrod. Thread the adjuster and locknut onto the shaft but do not tighten.

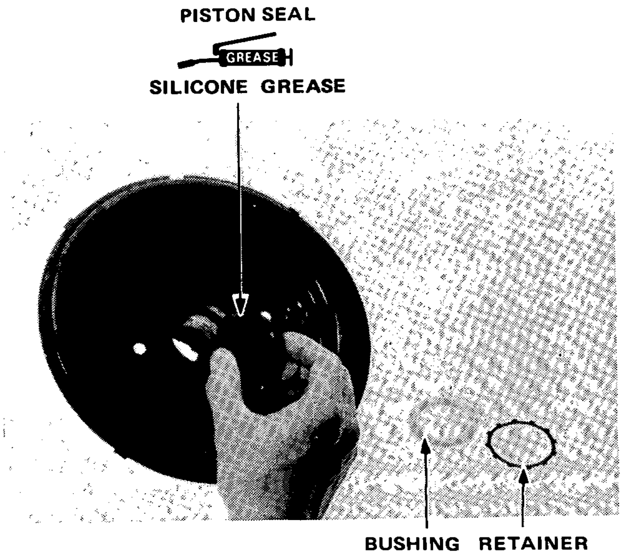

LOCKNUT
ADJUSTER
SILICONE GREASE
GREASE

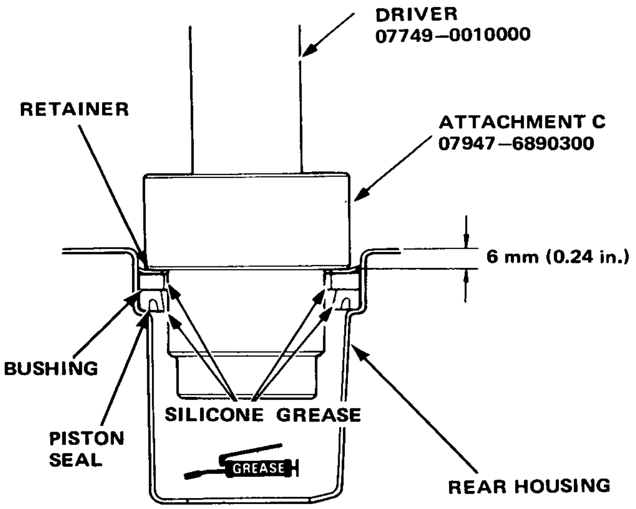
7. Apply silicone grease to the piston seal, then set the seal in position on the housing.

   NOTE: Make sure the lip of the seal is facing in, as shown in drawing below.

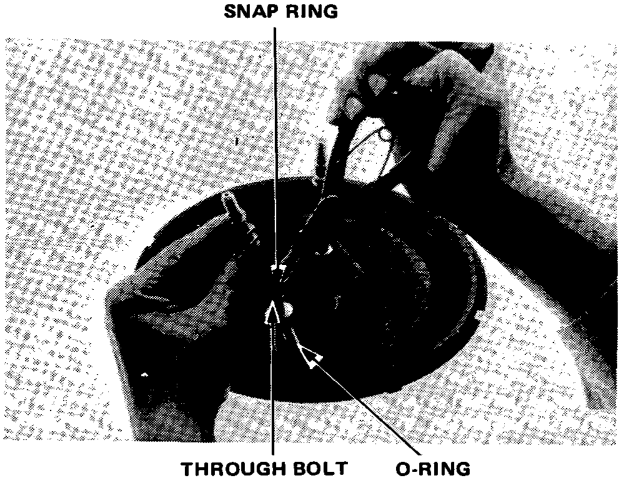
8. Install the piston seal and bushing in the rear housing, and gently drive the retainer in until it is 6 mm below the edge of the rear housing.

   CAUTION: If you drive in the retainer more than 6 mm, you may distort the piston seal.

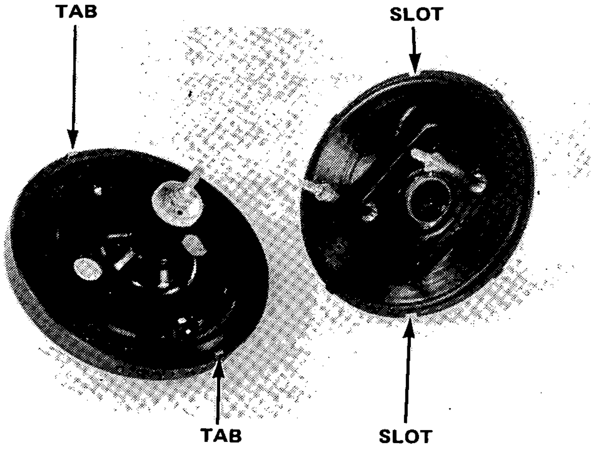

PISTON SEAL
GREASE
SILICONE GREASE
BUSHING
RETAINER


DRIVER
07749–0010000
RETAINER
ATTACHMENT C
07947–6890300
6 mm (0.24 in.)
BUSHING
PISTON SEAL
SILICONE GREASE
GREASE
REAR HOUSING

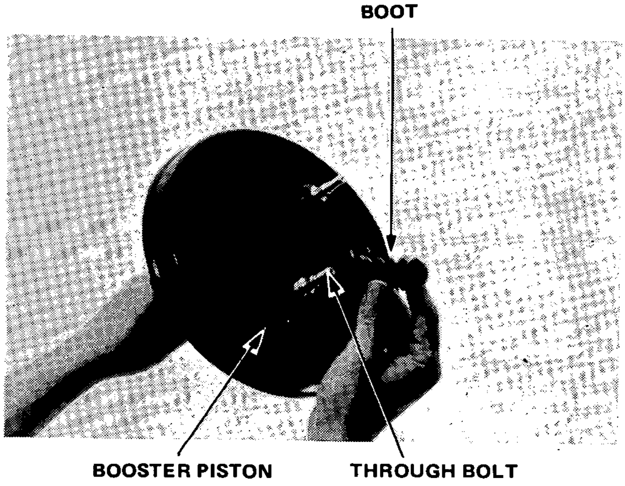
9. Install both through bolts, using the O-rings and snap rinfs.


SNAP RING
THROUGH BOLT
O-RING

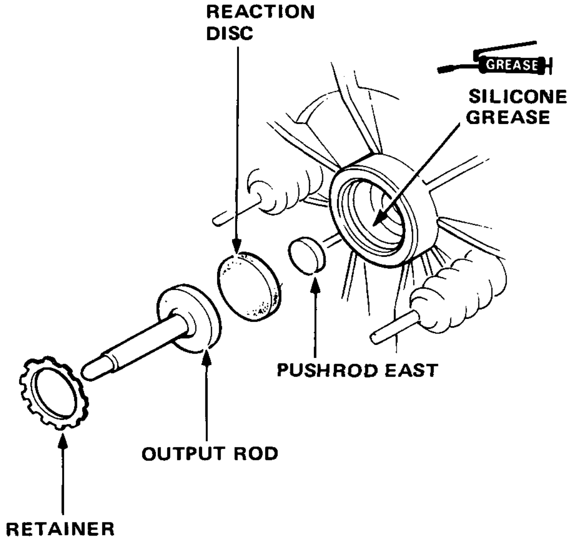
10. Attach the booster piston to the rear housing, aligning the tab of the booster piston with the slot in the rear housing.


TAB
SLOT
TAB
SLOT

11. Install the boots onto the through bolts.


BOOT
BOOSTER PISTON
THROUGH BOLT

12. Apply silicone grease to the bore of the booster piston, then install the push rod seat, reaction disc, output-rod, and retainer.

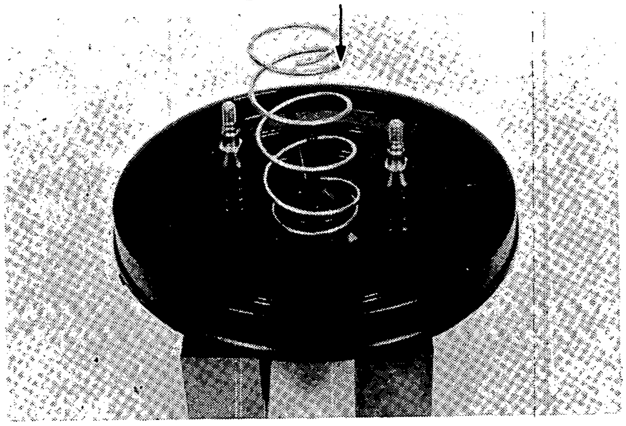

REACTION DISC
GREASE
SILICONE GREASE
PUSHROD EAST
OUTPUT ROD
RETAINER

(cont'd)

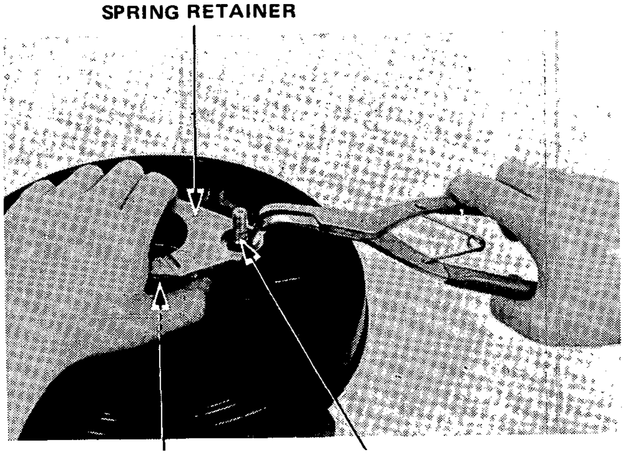
Brake Booster

Reassembly(cont'd)

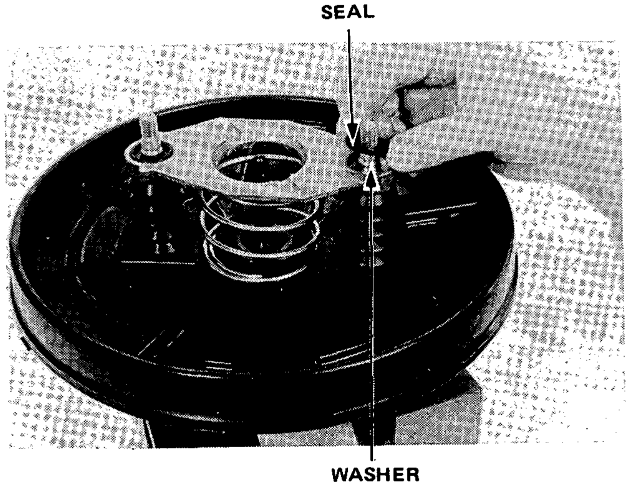
13. Install the booster spring.


BOOSTER SPRING

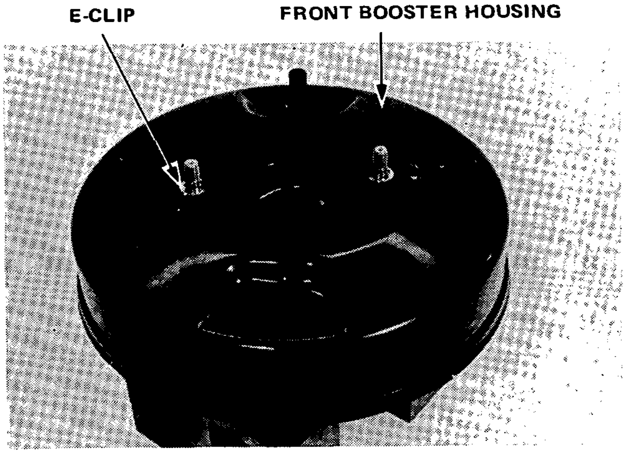
14. Install the spring retainer by compressing the booster spring, then installing the snap rings on the through bolts.


SPRING RETAINER
BOOSTER SPRING
SNAP RING

15. Install the washers and seals.


SEAL
WASHER

16. Assemble the front booster housing onto the rear booster housing, press down on the front housing, then install the E-clips on the through bolts.


E-CLIP
FRONT BOOSTER HOUSING

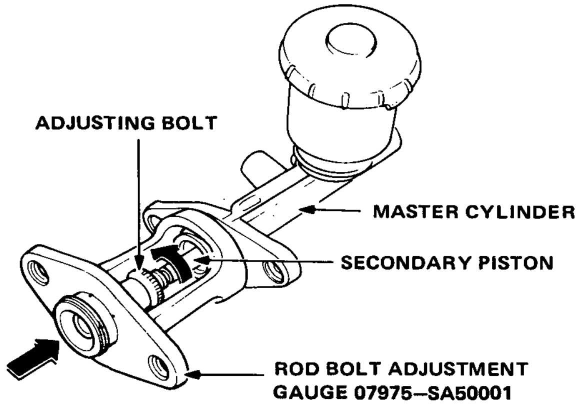
17. Adjust the pushrod clearance (page 21-23), and install the master cylinder.

Pushrod Clearance

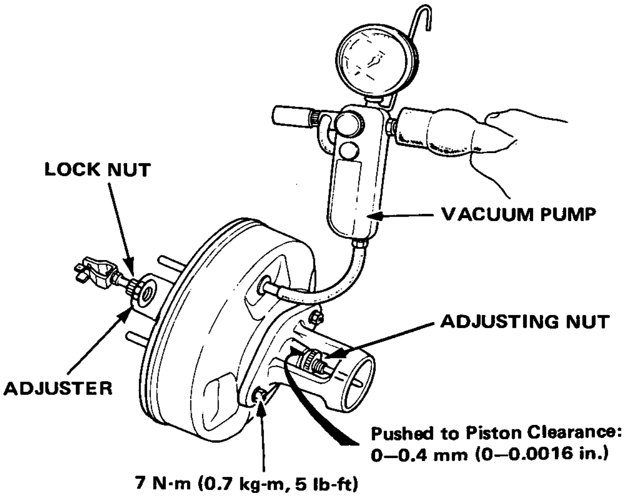
Adjustment

NOTE: Master cylinder pushrod-to-piston clearance must be checked, and adjustments made if necessary, before installing master cvlinder.

1. Using the Rod Bolt Adjustment Gauge, adjust bolt so the top of it is flush with end of master cylinder piston.


ADJUSTING BOLT
MASTER CYLINDER
SECONDARY PISTON
ROD BOLT ADJUSTMENT GAUGE 07975–SA50001

2. Without disturbing the adjusting bolt's position, put the gauge upside down on the booster.
3. Install the master cylinder nuts and tighten to the specified torque.
4. Connect the vacuum pump to the brake booster, and draw a vacuum of 500 mm Hg (20 in. Hg).
5. Measure.the clearance between the out-put rod and adjusting bolt with a feeler gauge.


LOCK NUT
VACUUM PUMP
ADJUSTING NUT
ADJUSTER
Pushed to Piston Clearance: 0–0.4 mm (0–0.0016 in.)
7 N·m (0.7 kg-m, 5 lb-ft)

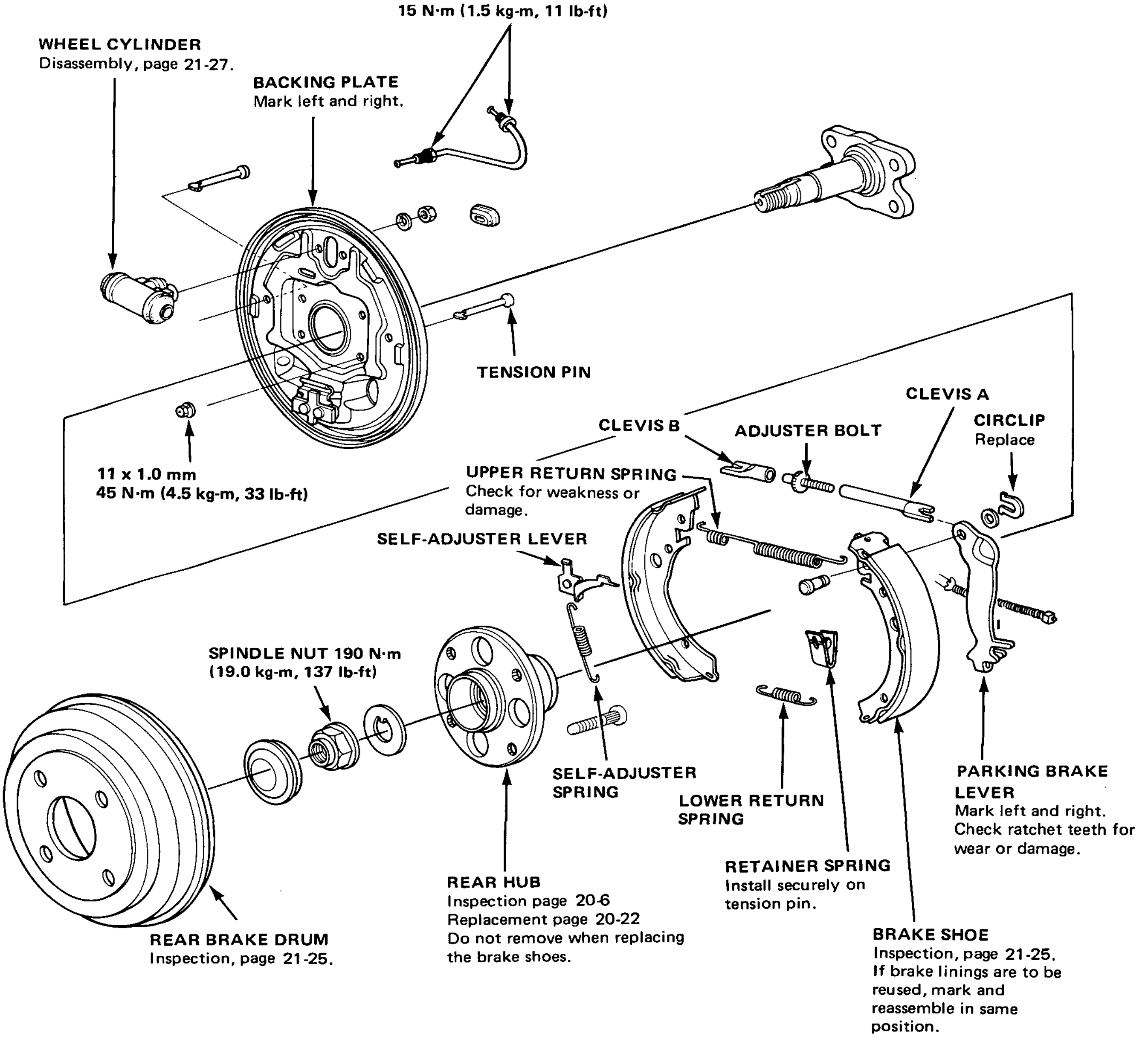
6. If clearance is incorrect, loosen star locknut and turn adjuster in or out to adjust.
7. Tighten locknut securely.

Rear Brakes

Index and Inspection

WARNING

- **Block the front wheels before jacking up the rear of the car.**
- **Do not use an air hose to blow the brake assembly clean. Use an OSHA-approved vacuum cleaner, to avoid breathing the brake lining dust.**

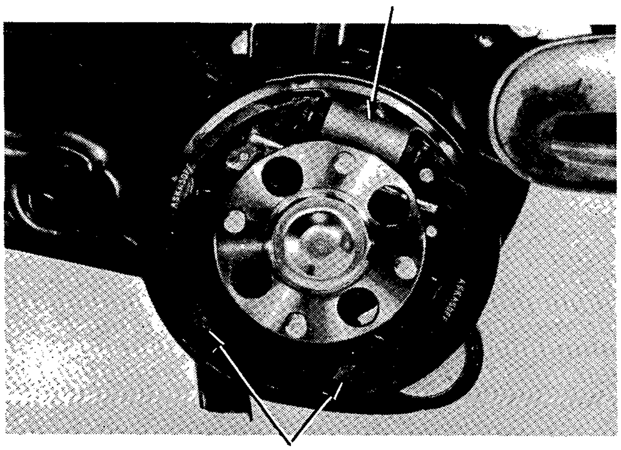

15 N·m (1.5 kg-m, 11 lb-ft)
WHEEL CYLINDER
Disassembly, page 21-27.
BACKING PLATE
Mark left and right.
TENSION PIN
11 x 1.0 mm
45 N·m (4.5 kg-m, 33 lb-ft)
CLEVIS A
CLEVIS B
ADJUSTER BOLT
CIRCLIP
Replace
UPPER RETURN SPRING
Check for weakness or damage.
SELF-ADJUSTER LEVER
SPINDLE NUT 190 N·m
(19.0 kg-m, 137 lb-ft)
SELF-ADJUSTER SPRING
LOWER RETURN SPRING
PARKING BRAKE LEVER
Mark left and right.
Check ratchet teeth for wear or damage.
RETAINER SPRING
Install securely on tension pin.
REAR HUB
Inspection page 20-6
Replacement page 20-22
Do not remove when replacing the brake shoes.
REAR BRAKE DRUM
Inspection, page 21-25.
BRAKE SHOE
Inspection, page 21-25.
If brake linings are to be reused, mark and reassemble in same position.

Rear Brakes

Inspection

1. Inspect the wheel cylinders for leakage.
2. Inspect the brake linings for cracking, glazing, wear or contamination.
3. Measure the brake lining thickness.

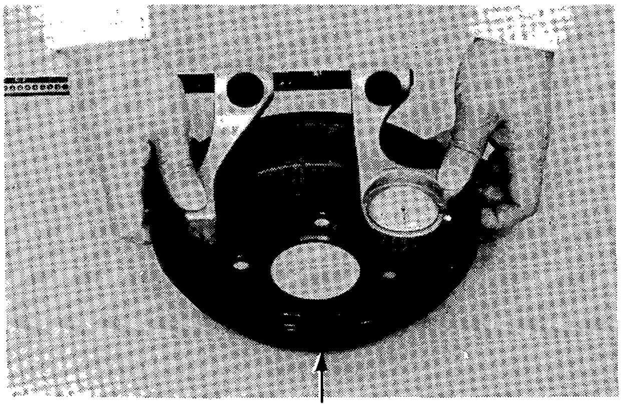
Lining Thickness
(Does not include brake shoe thickness)
Standard: **4.5 mm (0.177 in.)**
Service Limit: **2.0 mm (0.079 in.)**



4. Measure the inside diameter of the brake drum at three points.

Drum Inside Diameter:
Standard: **180 mm (7.09 in.)**
Service Limit: **181 mm (7.13 in.)**
4D H/B
Standard: **200 mm (7.87 in.)**
Service Limit: **201 mm (7.91 in.)**

NOTE: If the refinishing limit stamped on the drum does not match the one listed above, use the one on the drum.

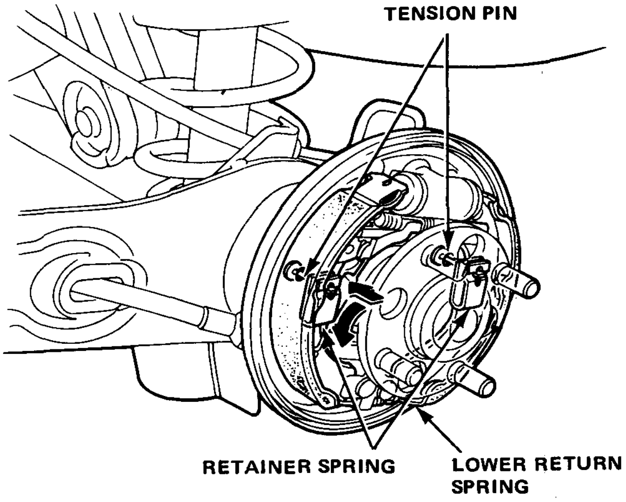


5. Inspect the brake drum for scoring, grooves, or cracks.

Brake Shoes

Removal

1. To remove the tension pins, push the retainer springs and turn them.


TENSION PIN
RETAINER SPRING
LOWER RETURN SPRING

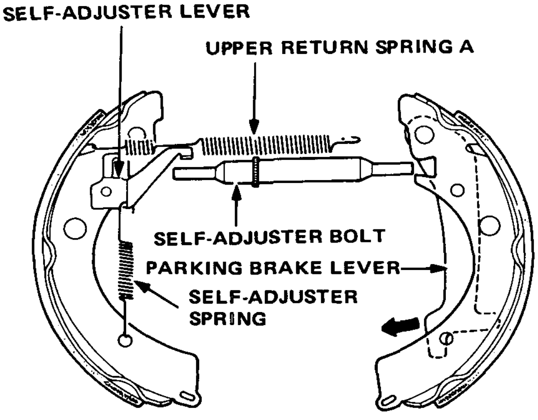
2. Lower the brake shoe assembly in order to clear the wheel cylinder, then remove the lower return spring.

   CAUTION: Do not damage the dust covers of the wheel cylinder.

3. Remove the brake shoe assembly by pulling it up over the hub.

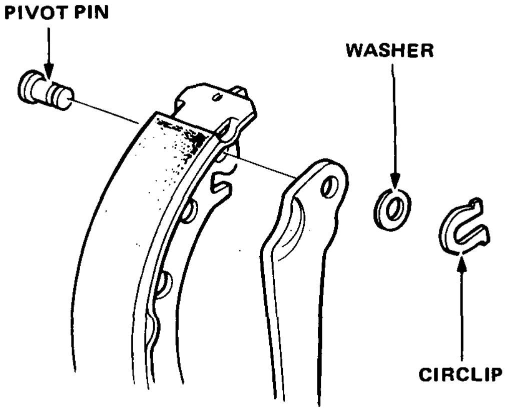
4. Disconnect the parking brake cable from the parking brake lever.

5. Remove the upper return spring, then separate the brake shoes.


SELF-ADJUSTER LEVER
UPPER RETURN SPRING A
SELF-ADJUSTER BOLT
PARKING BRAKE LEVER
SELF-ADJUSTER SPRING

6. Remove the self-adjuster bolt, lever and spring.

7. Remove the parking brake lever.

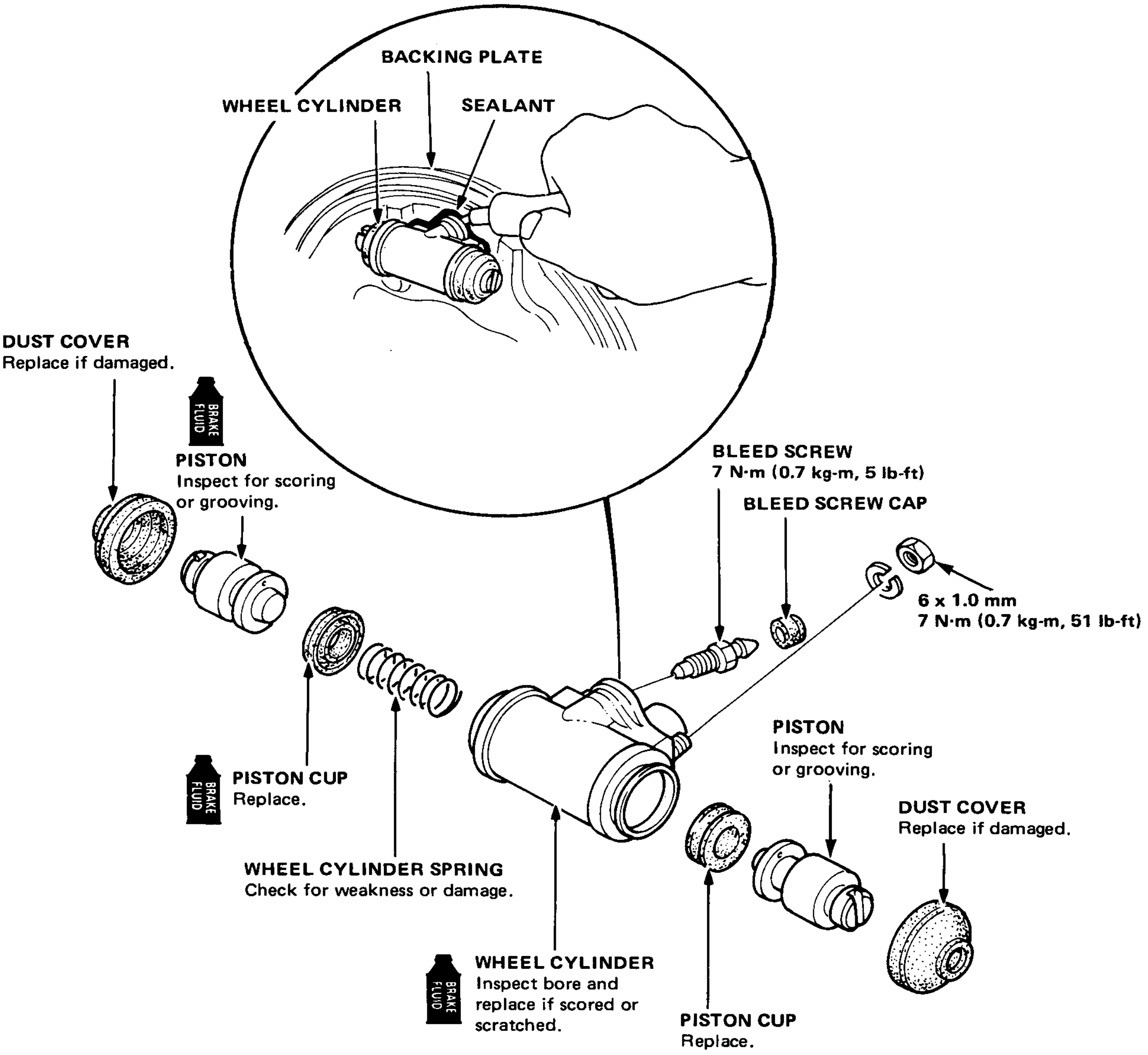

PIVOT PIN
WASHER
CIRCLIP

Wheel Cylinder

Disassembly and Inspection

CAUTION:

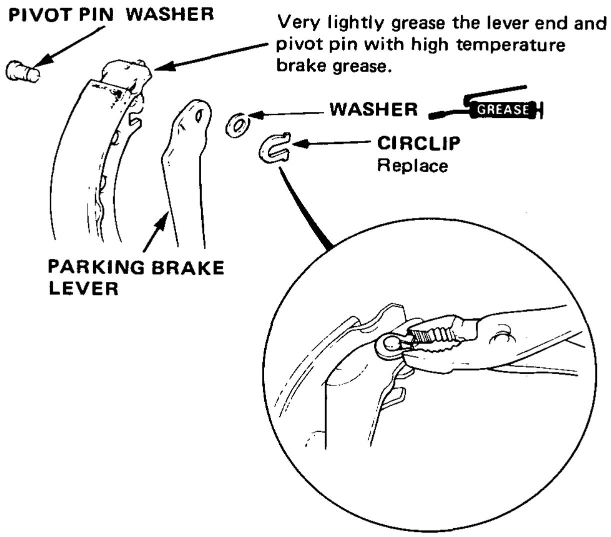
- **Clean all parts thoroughly with BRAKE FLUID only.**
- **Blow out all passages with compressed air.**
- **Lubricate all parts with brake fluid during assembly.**
- **Apply sealant between the wheel cylinder and backing plate whenever the wheel cylinder is removed.**


BACKING PLATE
WHEEL CYLINDER
SEALANT
DUST COVER
Replace if damaged.
BRAKE FLUID
PISTON
Inspect for scoring or grooving.
BLEED SCREW
7 N·m (0.7 kg-m, 5 lb-ft)
BLEED SCREW CAP
6 x 1.0 mm
7 N·m (0.7 kg-m, 51 lb-ft)
PISTON
Inspect for scoring or grooving.
DUST COVER
Replace if damaged.
BRAKE FLUID
PISTON CUP
Replace.
WHEEL CYLINDER SPRING
Check for weakness or damage.
BRAKE FLUID
WHEEL CYLINDER
Inspect bore and replace if scored or scratched.
PISTON CUP
Replace.

Brake Shoes

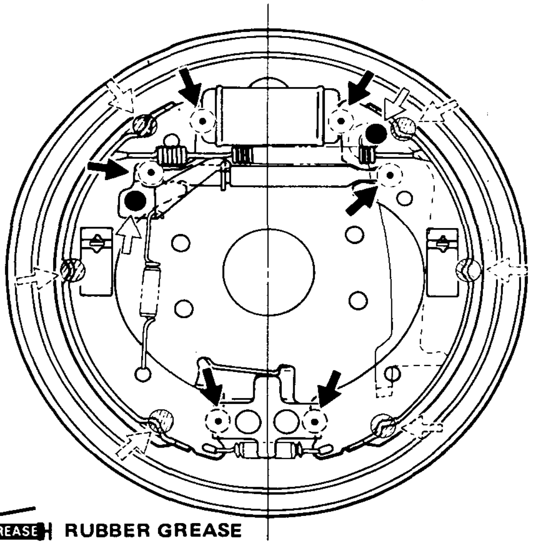
Reassembly

1. Fit the parking brake lever and secure it using the pivot pin, washer, and circlip.


PIVOT PIN
WASHER
Very lightly grease the lever end and pivot pin with high temperature brake grease.
WASHER
GREASE
CIRCLIP
Replace
PARKING BRAKE LEVER

2. Fit the parking brake cable to the backing plate.
3. Connect the parking brake cable to the parking brake lever.
4. Apply grease on metal-to-metal contact areas as shown.

NOTE: Do not get grease or oil on lining surface.



GREASE RUBBER GREASE

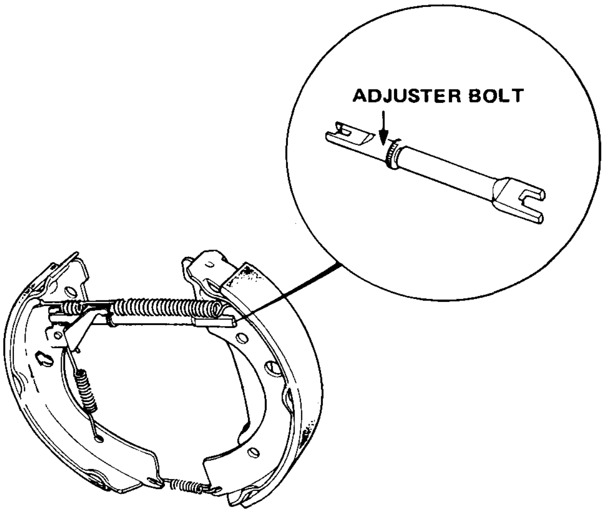
Greasing symbols:

➡ ⊙ **Brake shoe ends**

⇨ ○ **Opposite the edge of the shoe,**

⇨ ● **Sliding surface**

5. Screw in the self-adjuster bolt until it stops.
6. Hook the self-adjuster spring to the self-adjuster lever, and then to the brake shoe.


ADJUSTER BOLT

7. Install the self-adjuster bolt and upper return spring on the brake shoes as shown.
8. Fit the brake shoe assembly over the hub and onto the backing plate. Fit the tension pins through their holes in the brake shoes, and fit the shoes into the grooves in the wheel cylinder pistons.

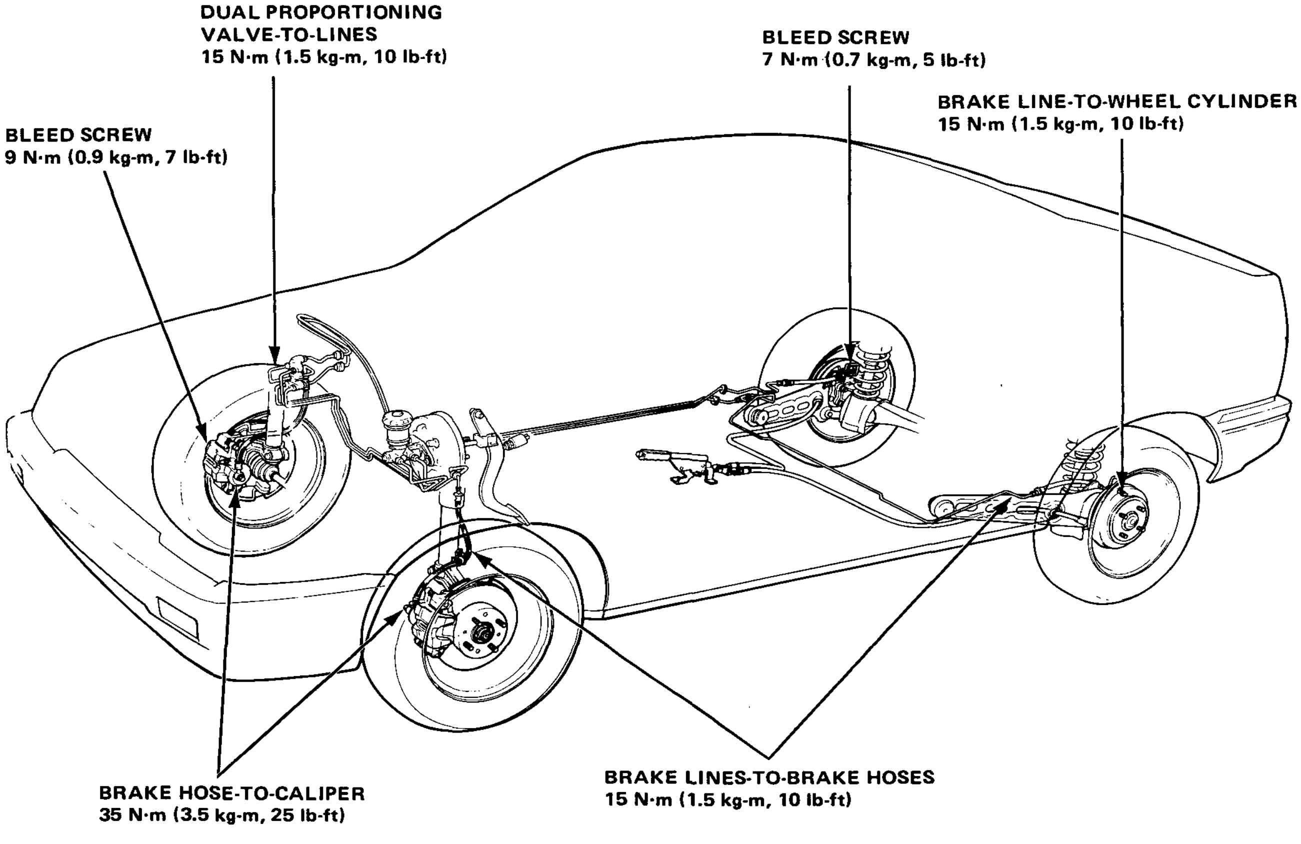
   CAUTION: Make sure the wheel cylinder dust covers are not damaged during installation.

9. Fir the retainer springs onto the tension pins.
10. Hook the lower return spring to the brake shoes.
11. Install the brake drums.
12. Bleed and then adjust the brakes as described on pages 21-10 and 21-3.

Brake Lines and Hoses

Inspection

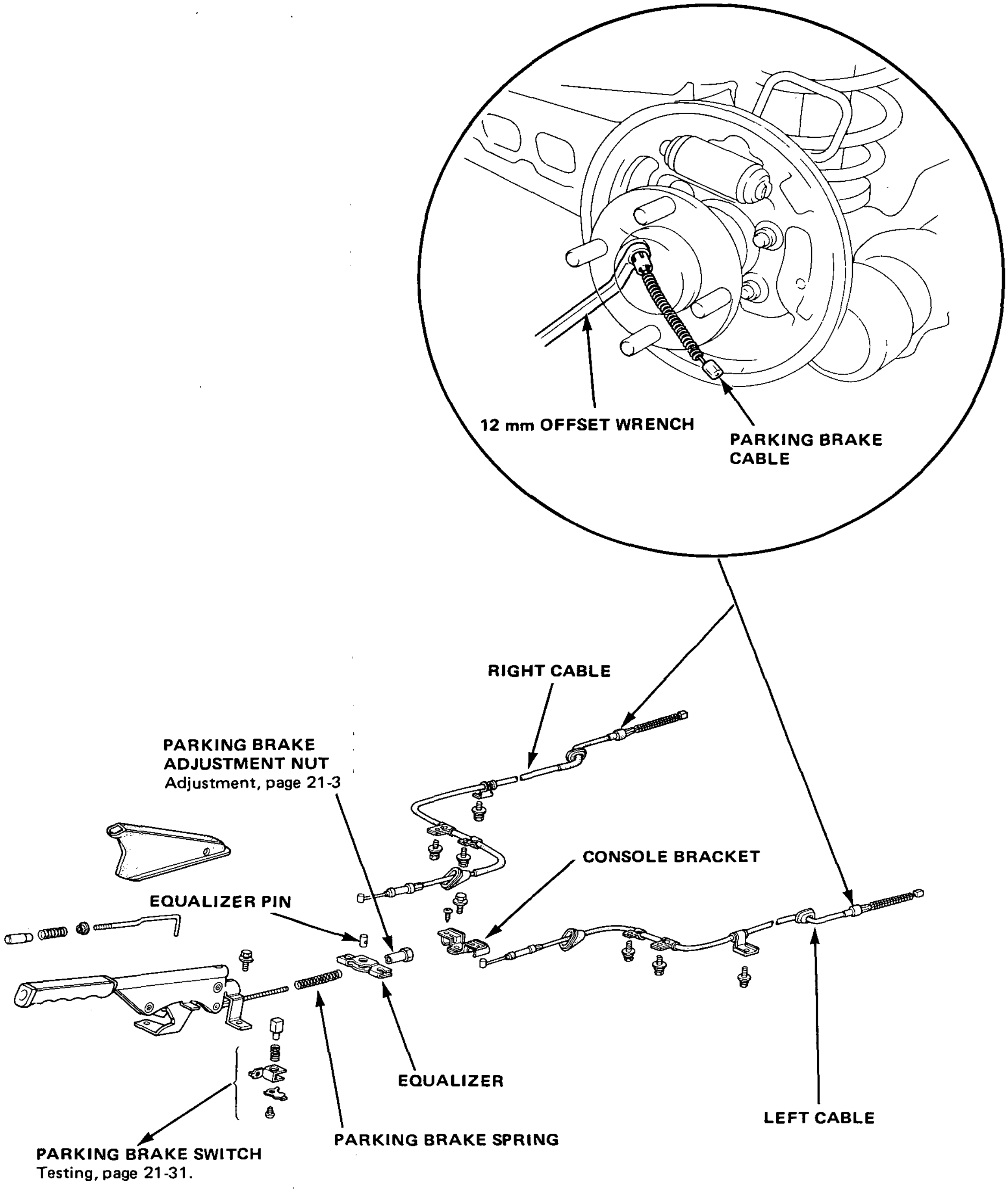
1. Inspect the brake hoses for damage, leaks, interference or twisting.
2. Check the brake lines for damage, rusting or leakage. Also check for bent brake lines.
3. Check for leaks at hose and pipe joints or connections, and retighten if necessary.


DUAL PROPORTIONING VALVE-TO-LINES
15 N·m (1.5 kg-m, 10 lb-ft)
BLEED SCREW
7 N·m (0.7 kg-m, 5 lb-ft)
BRAKE LINE-TO-WHEEL CYLINDER
15 N·m (1.5 kg-m, 10 lb-ft)
BLEED SCREW
9 N·m (0.9 kg-m, 7 lb-ft)
BRAKE HOSE-TO-CALIPER
35 N·m (3.5 kg-m, 25 lb-ft)
BRAKE LINES-TO-BRAKE HOSES
15 N·m (1.5 kg-m, 10 lb-ft)

Parking Brake

Disassembly/Reassembly

Remove the parking brake cable from the backing plate using a 12 mm offset wrench as shown.

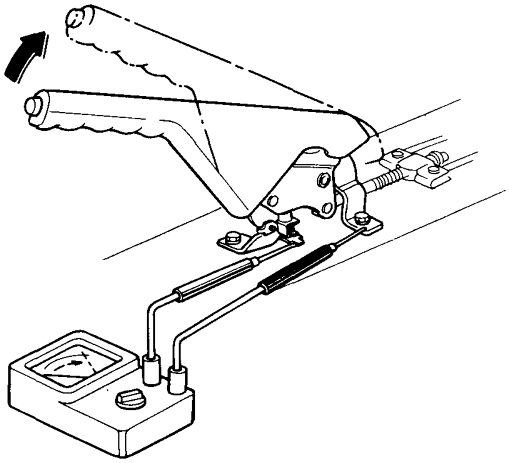

12 mm OFFSET WRENCH
PARKING BRAKE CABLE
RIGHT CABLE
PARKING BRAKE ADJUSTMENT NUT
Adjustment, page 21-3
CONSOLE BRACKET
EQUALIZER PIN
EQUALIZER
LEFT CABLE
PARKING BRAKE SPRING
PARKING BRAKE SWITCH
Testing, page 21-31.

Parking Brake Switch

Testing

Attach one test probe of an ohmmeter to the switch, and the other to the body.

- With the brake lever up, there should be continuity.
- With the brake lever down, there should be no continuity.



If continuity readings are incorrect, replace switch.

Brake Light Switch

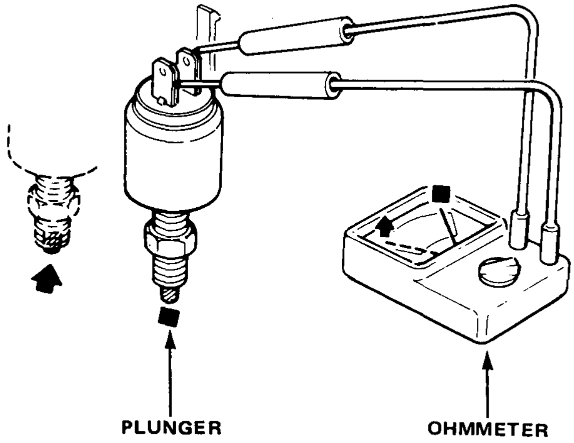
Testing

Check for continuity between both terminals with an ohmmeter.

- With the switch plunger pushed in, there should be no continuity.
- With the switch plunger released, there should be continuity.

  If no continuity, replace switch.

NOTE: If you replace the brake light switch, or change its position, readjust pedal height (page 21-3).



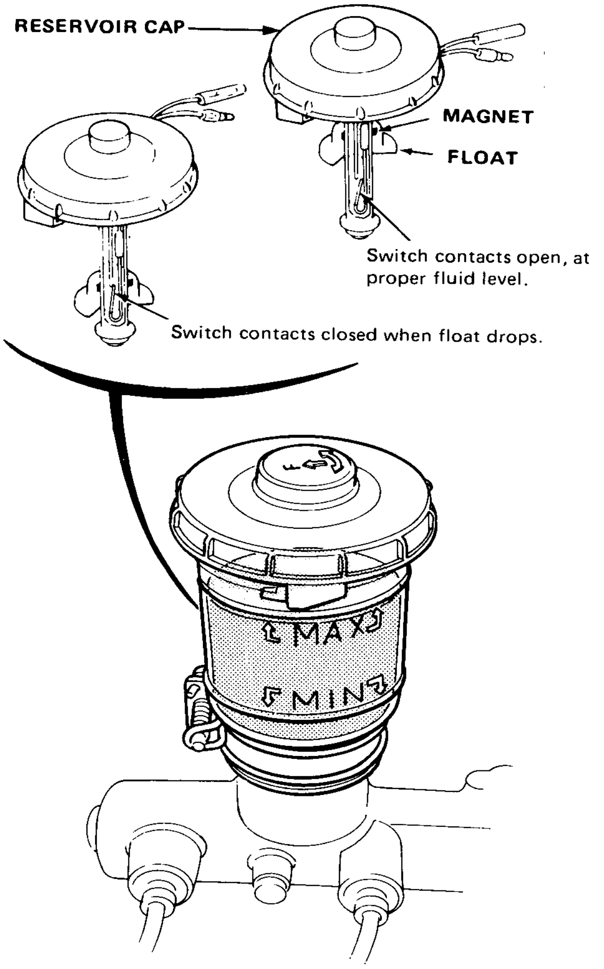
Warning System Testing

Fluid Level Switch

A float level sensor switch is part of the cap on the master cylinder reservoir. When fluid level drops below limits, the switch is actuated by a magnet in the float which completes the ground circuit to the BRAKE indicator light.

To check the brake fluid level switch:

1. Put the transmission in gear and release the parking brake.
2. Turn the ignition switch to II.
3. Remove the reservoir cap and lift the float level switch out of the reservoir.
4. Check that the BRAKE indicator light turns on.


RESERVOIR CAP
MAGNET
FLOAT
Switch contacts open, at proper fluid level.
Switch contacts closed when float drops.
MAX
MIN

Warning Indicator Light

1. Be sure the brake master cylinder is full.
2. Set the parking brake, then turn the ignition switch to II. The warning light should come on.
    - If it does not come on at all, check the fuse.
    - If the fuse is OK, check the fluid level switch (see the previous procedure), then check the bulb.
    - If the light still does not come on, check the parking brake switch.
3. Then release the parking brake; the warning light should go out.
    - If the light does not go out, check the parking brake switch, fluid level switch and the bulb check relay.
4. Be sure the transmission is in neutral, then turn the key to III (start). The warning light should come on again.
    - If the light does not come on, check the bulb check relay.

Brake Warning System Circuit

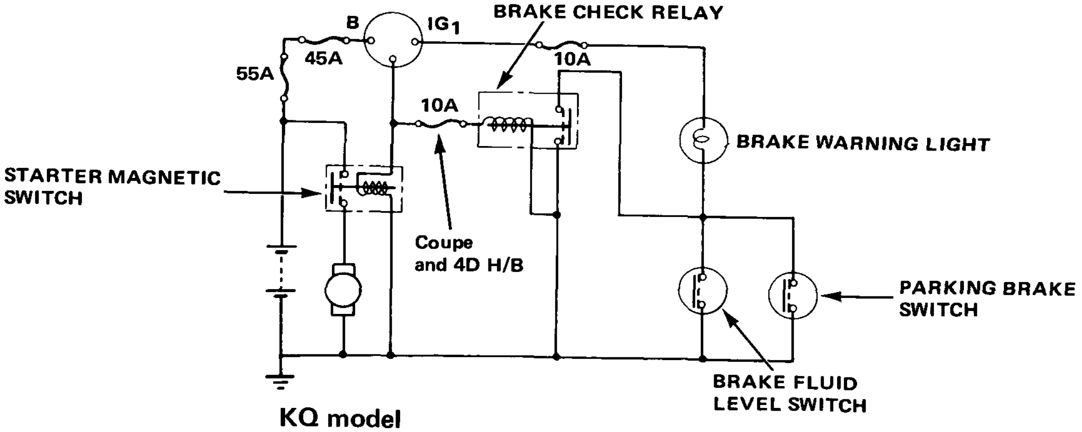
Brake Fluid Level Switch

A float level sensor type switch is installed in the brake fluid reservoir. When fluid level drops below limits, the switch is actuated by a magnet in the float which completes the ground circuit to the brake warning light. The brake warning light comes on when the ignition switch is turned to "III" (start) position, to indicate bulb working properly by means of the bulb check relay.

Parking Brake Switch

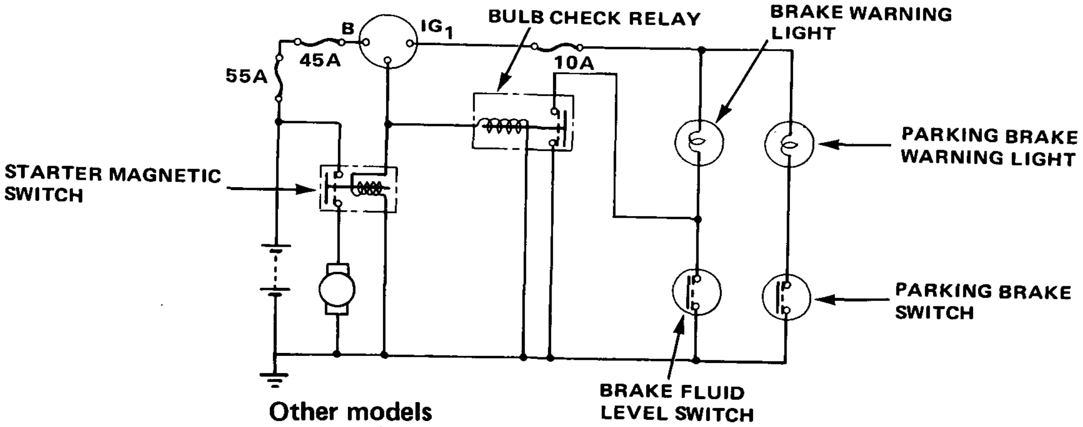
Parking brake warning light comes on when the parking brake is engaged with the ignition position "II or III" and goes off when the parking brake released.

KC model



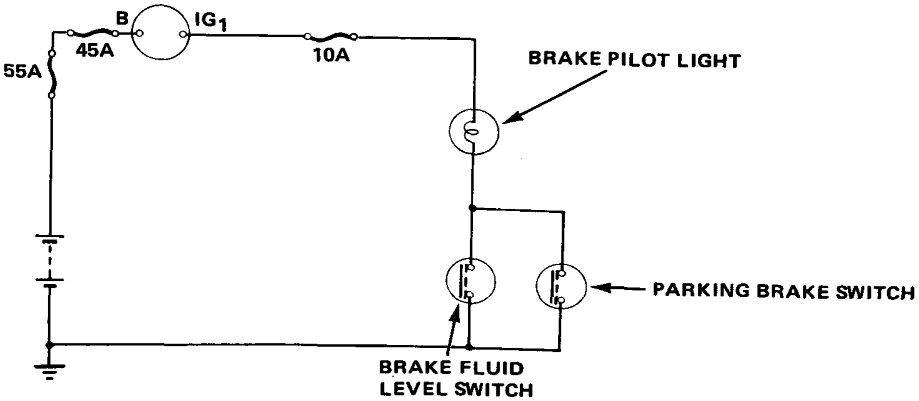
B
IG1
BRAKE CHECK RELAY
55A
45A
10A
10A
BRAKE WARNING LIGHT
STARTER MAGNETIC SWITCH
Coupe and 4D H/B
PARKING BRAKE SWITCH
BRAKE FLUID LEVEL SWITCH

KQ model



B
IG1
BULB CHECK RELAY
BRAKE WARNING LIGHT
55A
45A
10A
PARKING BRAKE WARNING LIGHT
STARTER MAGNETIC SWITCH
PARKING BRAKE SWITCH
BRAKE FLUID LEVEL SWITCH

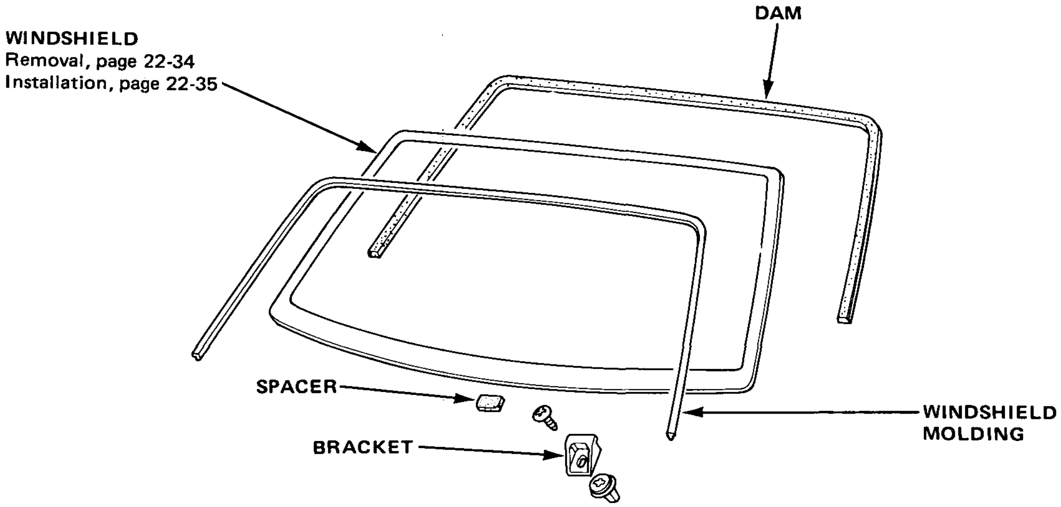
Other models

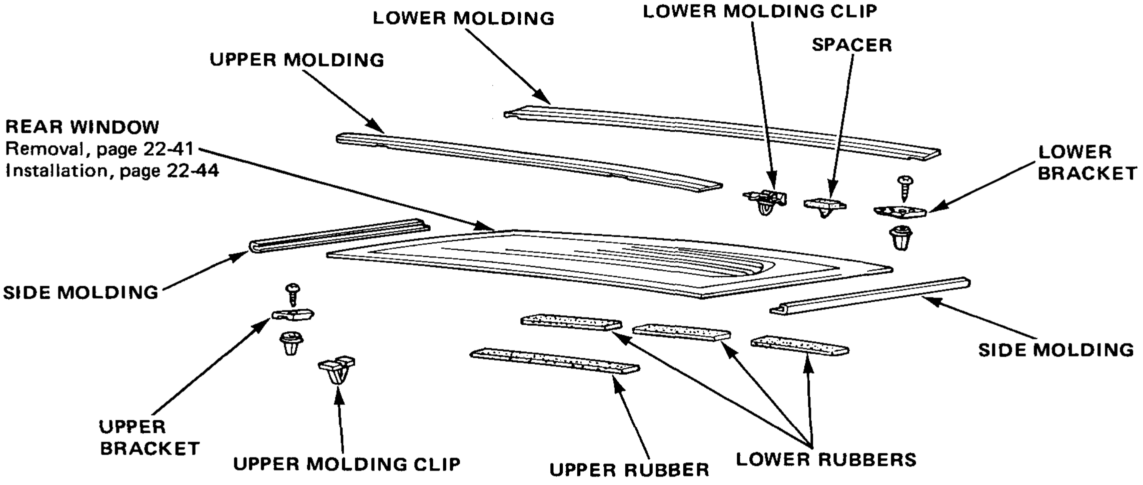


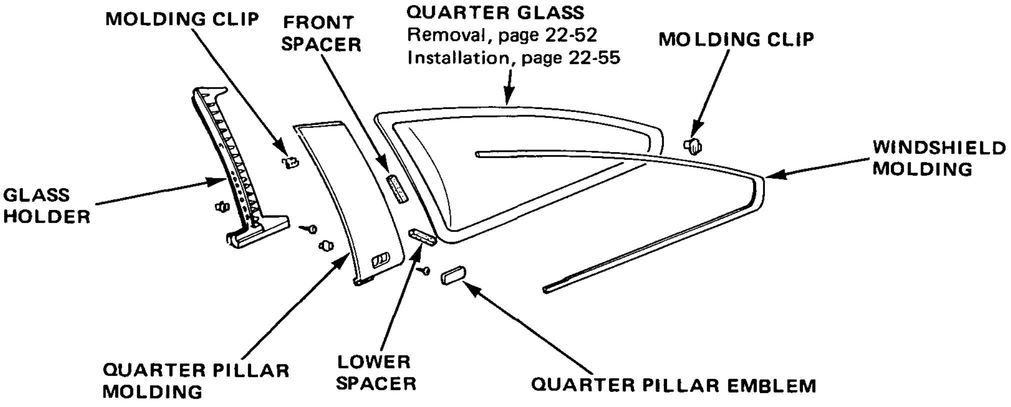
B
IG1
55A
45A
10A
BRAKE PILOT LIGHT
PARKING BRAKE SWITCH
BRAKE FLUID LEVEL SWITCH

Windshield and Rear Windows

Index (Coupe)


DAM
WINDSHIELD
Removal, page 22-34
Installation, page 22-35
SPACER
BRACKET
WINDSHIELD
MOLDING


LOWER MOLDING
LOWER MOLDING CLIP
SPACER
UPPER MOLDING
REAR WINDOW
Removal, page 22-41
Installation, page 22-44
LOWER
BRACKET
SIDE MOLDING
SIDE MOLDING
UPPER
BRACKET
UPPER MOLDING CLIP
UPPER RUBBER
LOWER RUBBERS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SPACER
QUARTER GLASS
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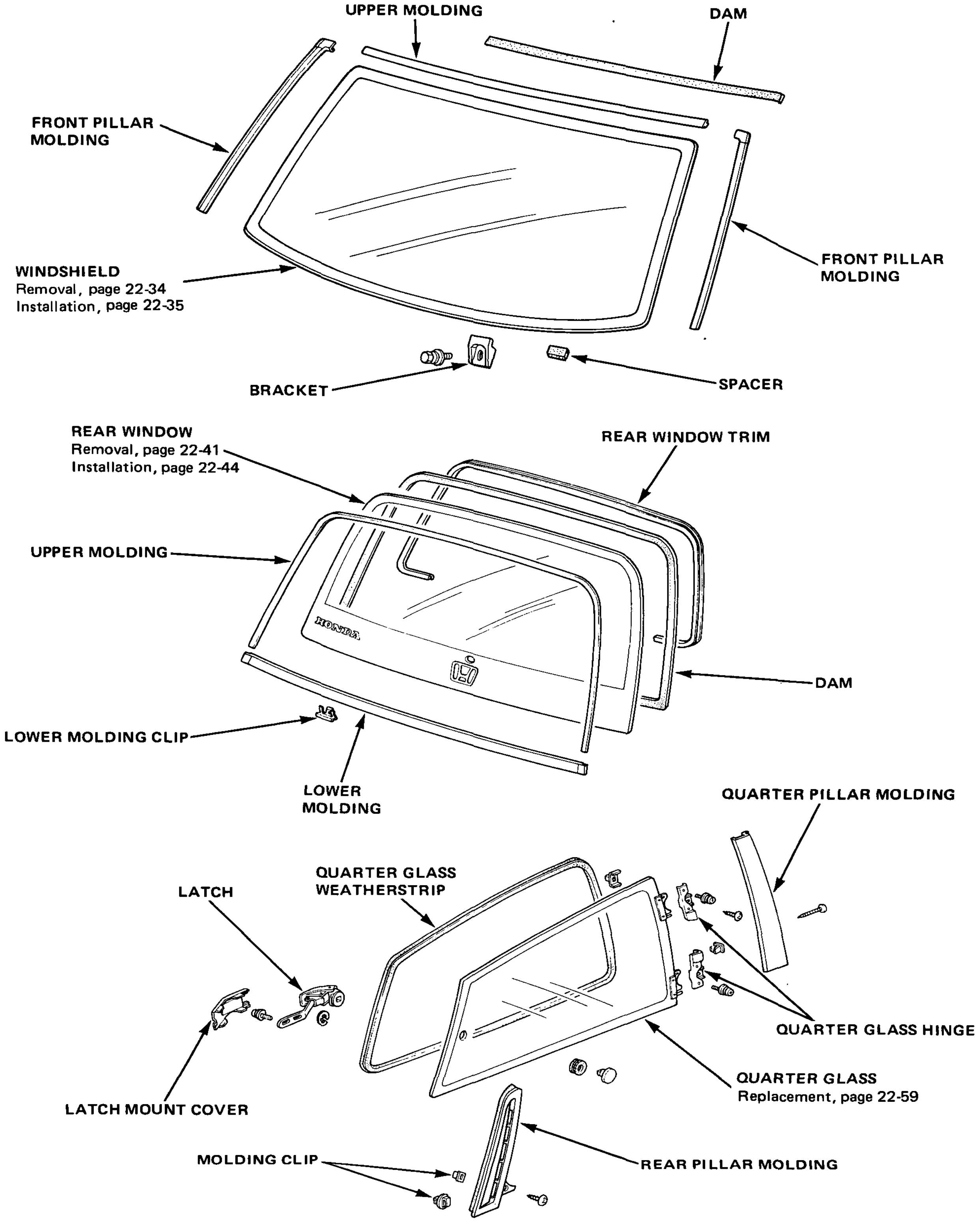
WINDSHIELD
MOLDING
GLASS
HOLDER
QUARTER PILLAR
MOLDING
LOWER
SPACER
QUARTER PILLAR EMBLEM

(2D H/B)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DAM
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REAR PILLAR MOLDING
HONDA

Windshield and Rear Windows

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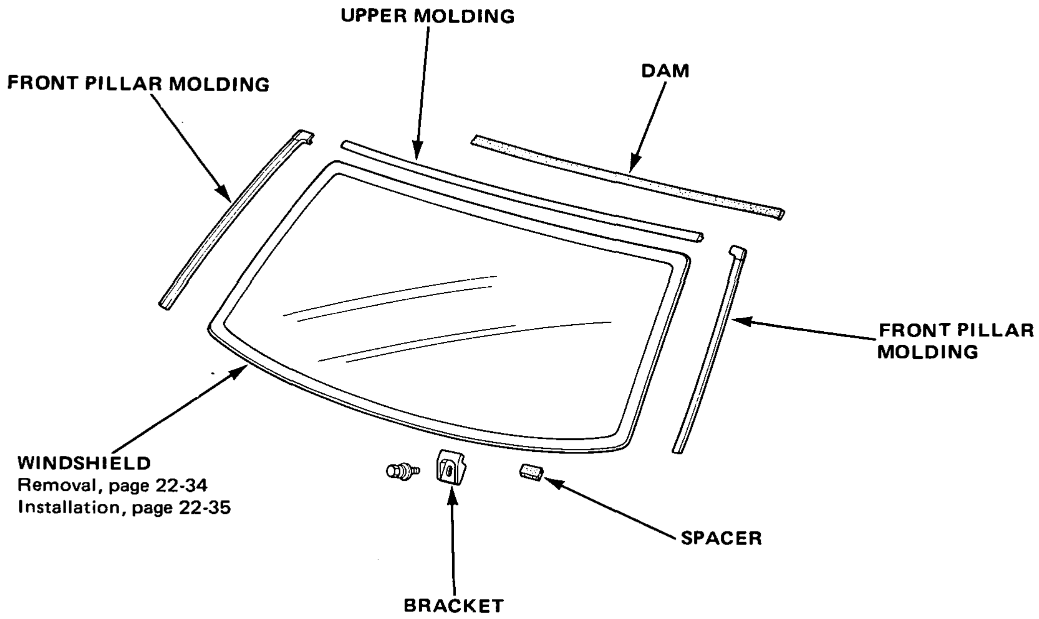
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FRONT PILLAR MOLDING
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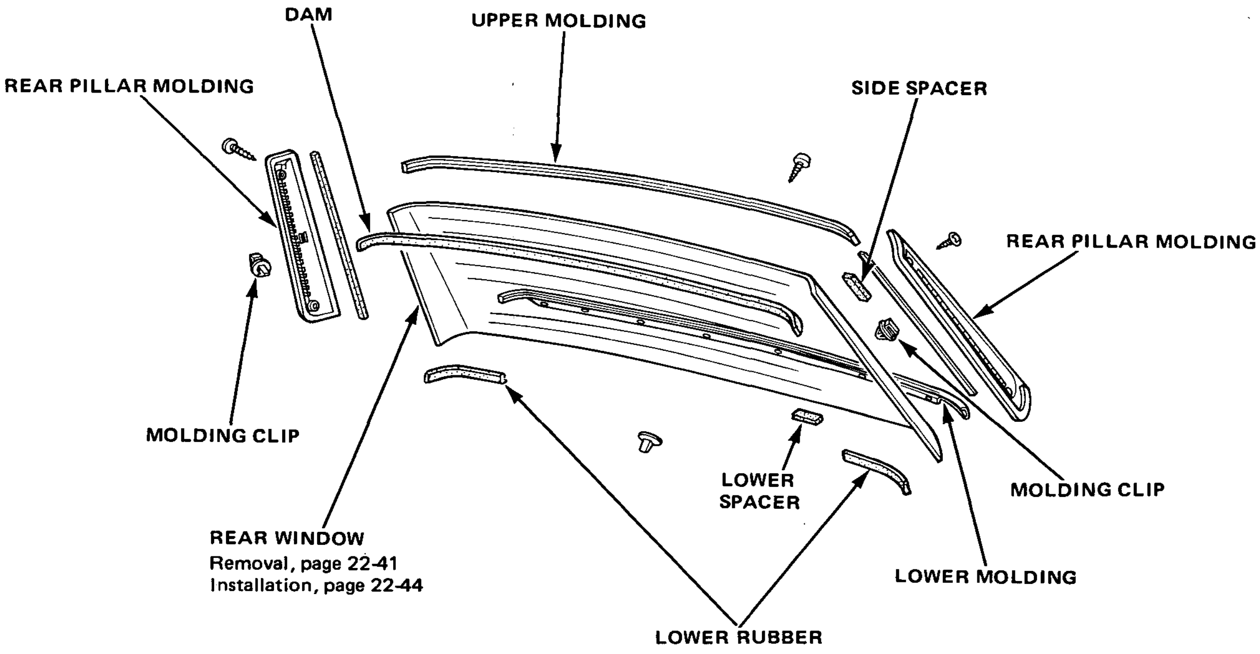
BRACKET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REAR PILLAR MOLDING
SIDE SPACER
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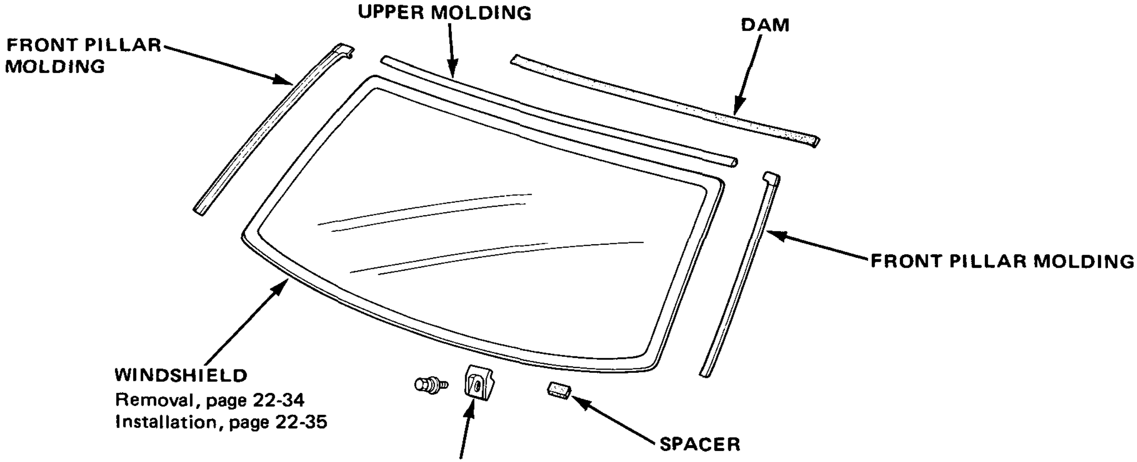
LOWER RUBBER

(4D H/B)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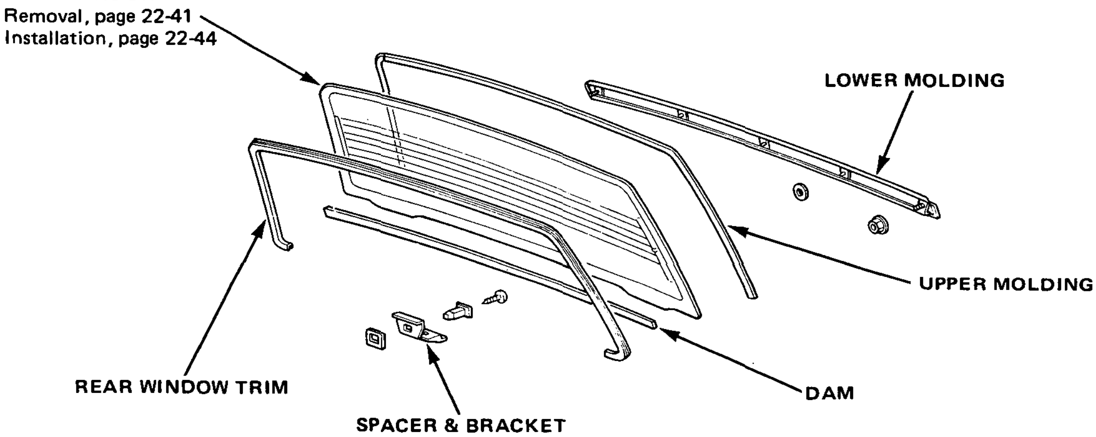
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REAR WINDOW TRIM
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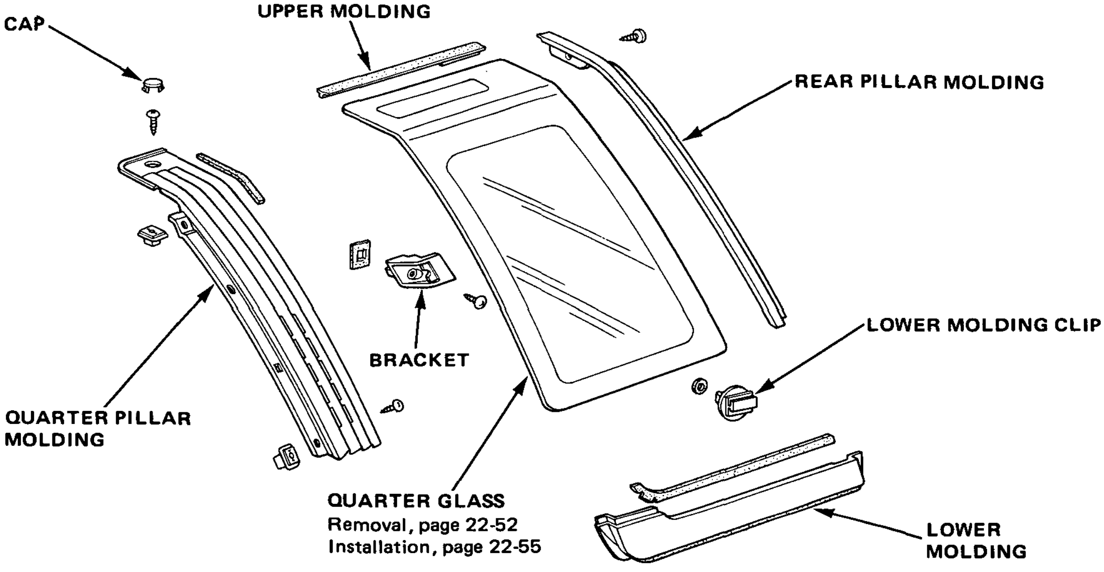
CAP
UPPER MOLDING
REAR PILLAR MOLDING
LOWER MOLDING CLIP
BRACKET
QUARTER PILLAR MOLDING
QUARTER GLASS
Removal, page 22-52
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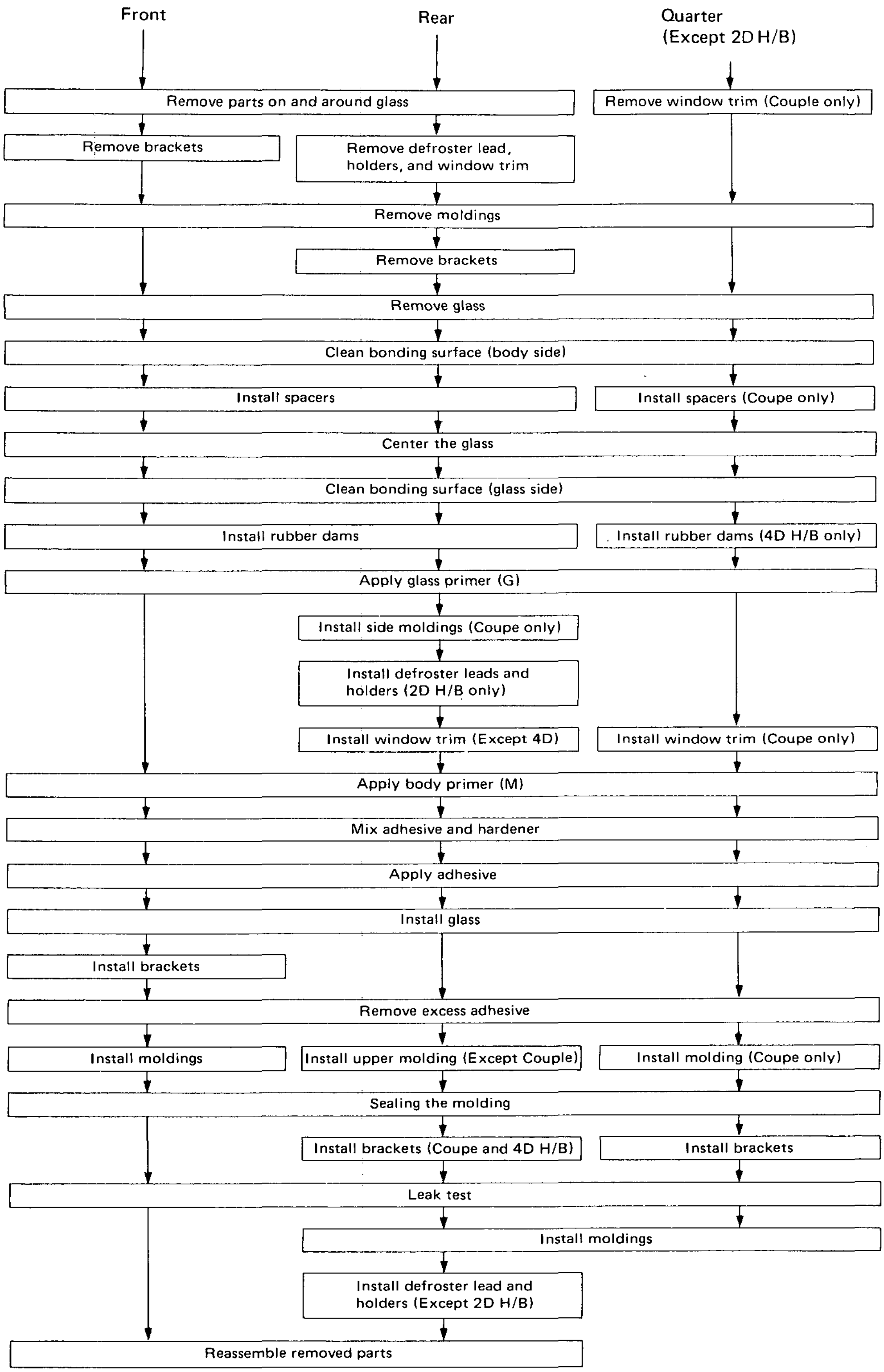
LOWER MOLDING

Windshield and Rear Windows

Removal/Installation


Front
Rear
Quarter (Except 2D H/B)
Remove parts on and around glass
Remove window trim (Couple only)
Remove brackets
Remove defroster lead, holders, and window trim
Remove moldings
Remove brackets
Remove glass
Clean bonding surface (body side)
Install spacers
Install spacers (Coupe only)
Center the glass
Clean bonding surface (glass side)
Install rubber dams
Install rubber dams (4D H/B only)
Apply glass primer (G)
Install side moldings (Coupe only)
Install defroster leads and holders (2D H/B only)
Install window trim (Except 4D)
Install window trim (Coupe only)
Apply body primer (M)
Mix adhesive and hardener
Apply adhesive
Install glass
Install brackets
Remove excess adhesive
Install moldings
Install upper molding (Except Couple)
Install molding (Coupe only)
Sealing the molding
Install brackets (Coupe and 4D H/B)
Install brackets
Leak test
Install moldings
Install defroster lead and holders (Except 2D H/B)
Reassemble removed parts

Parts

Part Number	Contents	Comment
Adhesive kit — Low temperature 08718–99960 —High temperature 08718–99961	Adhesive sealant (500 g)	
	Hardener (75 g)	
	Glass primer G (20 g)	
	Body primer M (20 g)	
	Piano wire (0.6ϕ x 1 m (3.3 ft))	
	Gauze	For glass primer (G)
	Cartridge	For applying adhesive
	Sponge	For applying primer

Tools

Tool/Material	Remarks
Glass or steel plate	To mix adhesive and hardener on
Putty knife	To mix adhesive and remove excess
Caulking gun	To apply bead of adhesive to windshield
Suction cups	To install windshield
Knife	To scrape bonding surface around window opening
Awl	To make hole through existing adhesive for piano wire
Two wood sticks	To hold piano wire
Toluene or alcohol	To clean bonding surfaces

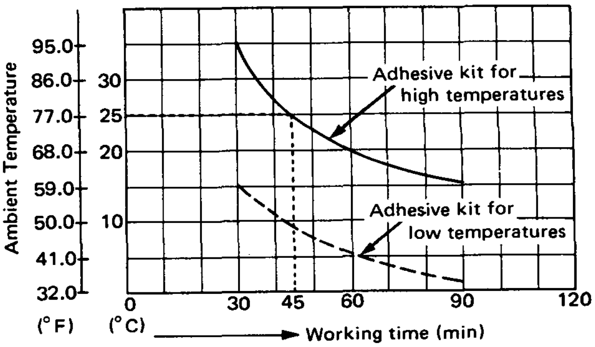
Windshield and Rear Windows

Adhesive/Primer

Workable Time

Adhesive workable time varies widely according to temperature, so choose the correct adhesive kit for the temperature range you will be working in.
After mixing and applying adhesive, you should install the windshield within the time shown on the chart.

For example, when the ambient temperature is 25°C (77°F), the glass should be installed within 45 minutes using the high temperature type adhesive.
Kit part numbers and contents are listed on previous page.

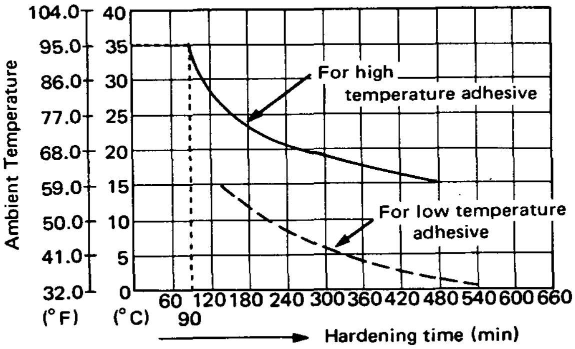


Hardening Time

Hardening time can be shortened by heating with infrated light.

For example, the adhesive (for high temperature type) will start to harden within 270 minutes after mixing at 20°C (68°F). If, however, it is heated to 35°C (95°F), it will start to harden within 90 minutes.

CAUTION: To prevent bubbling, keep the surface temperature below 50°C (122°F).



Primer

Both kits have two types of primer: One for the body (metal), and one for glass.

Notes

- Always use new genuine Honda primer, or equivalent.
- Do not use the adhesive if 6 months have elapsed since date of manufacture.
- Store adhesive and primer in a cool, dry place.
- Open only immediately before you are going to use it.

Broken Glass Removal

Windshield:

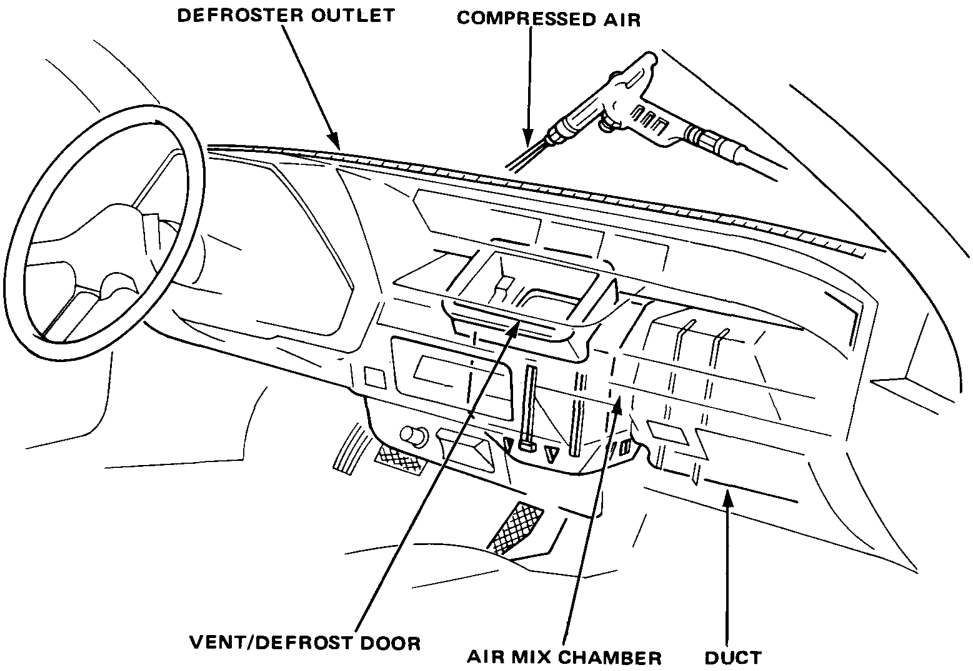
Remove as much broken glass as possible with a vacuum cleaner.

Blow out the glass in the heater and behind the dashboard with low pressure compressed air:

WARNING **Wear eye protection while using the air gun.**

1. Set the temperature control lever to COLD.
2. Push the HEAT button on the function panel.
3. Make sure the recirculation button is out (OFF).
4. Blow compressed air through the defroster center vent outlet.
5. Remove the blower duct, and remove any glass from the air mix chamber.
6. Remove any glass from the top of the vent/defrost door.
7. Remove any glass from the top and bottom of the carpet and seats with a vacuum cleaner

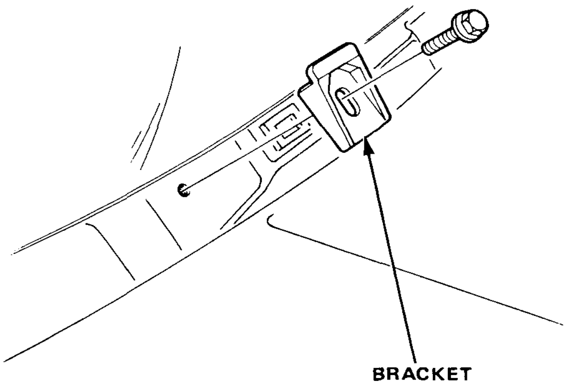
   NOTE: You should remove the seats and shake them to remove any glass.



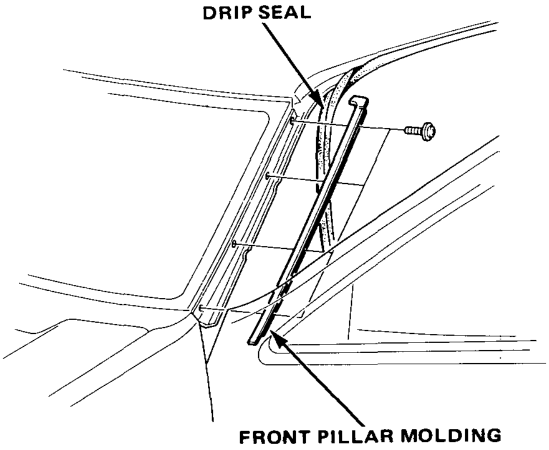
Windshield

Removal

1. To remove the windshield, first remove the:
   - Inside rear view mirror (page 22-76).
   - Sun visor.
   - Front pillar trim (pages 22-61 to 64).
   - Front wiper and air scoop (page 22-128).
2. Remove the right and left brackets.

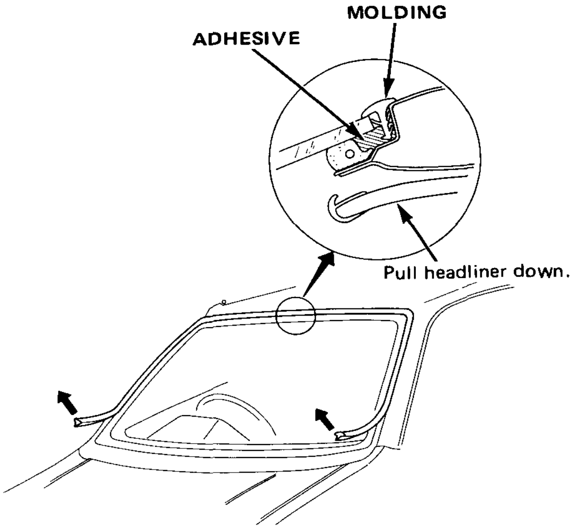


3. Remove the front pillar molding by taking off the drip seal, and removing the screws (except coupe).

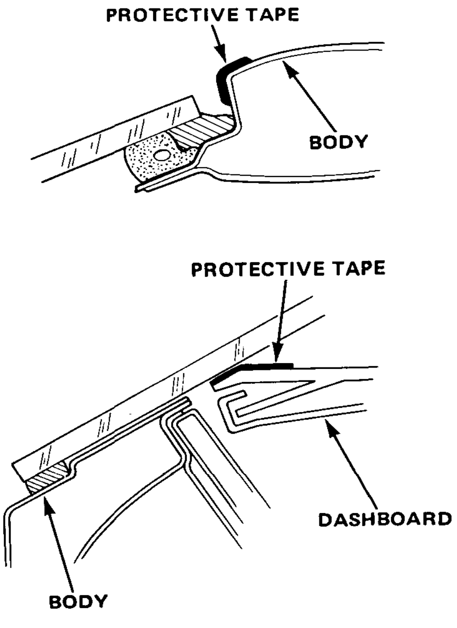

DRIP SEAL
FRONT PILLAR MOLDING

4. Peel off the windshield molding, then pull down the front edge of the headliner so it will not interfere with the glass removal.

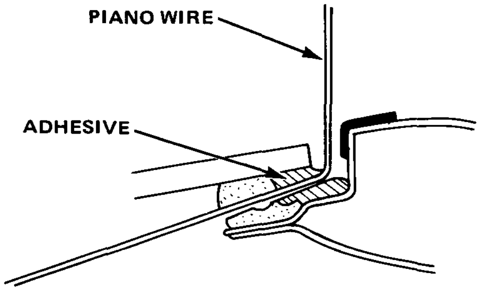
   NOTE: Take care not to bend the headliner excessively.


MOLDING
ADHESIVE
Pull headliner down.

5. Apply protective tape along the edge of the dashboard and body next to the windshield as shown.

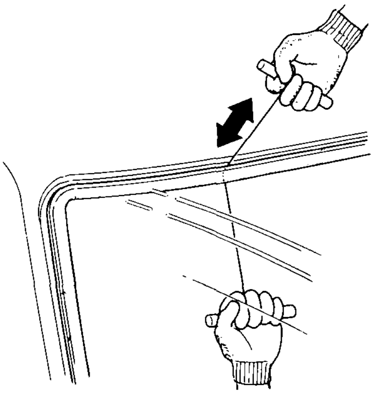

PROTECTIVE TAPE
BODY
PROTECTIVE TAPE
DASHBOARD
BODY

6. Using an awl, make a hole through the windshield adhesive from inside the car. Push piano wire through the hole and wrap each end around a piece of wood.



7. With a helper on the outside, pull the wire back and forth in a sawing motion and carefully cut through the adhesive around the entire windshield.

CAUTION: Hold the piano wire as close to the glass as possible to prevent damage to the body and dashboard.



8. Cut the rubber spacers away from the body with a knife; they are cemented in place.

NOTE: Replace the rubber spacers with new ones whenever the windshield has been removed.

Installation

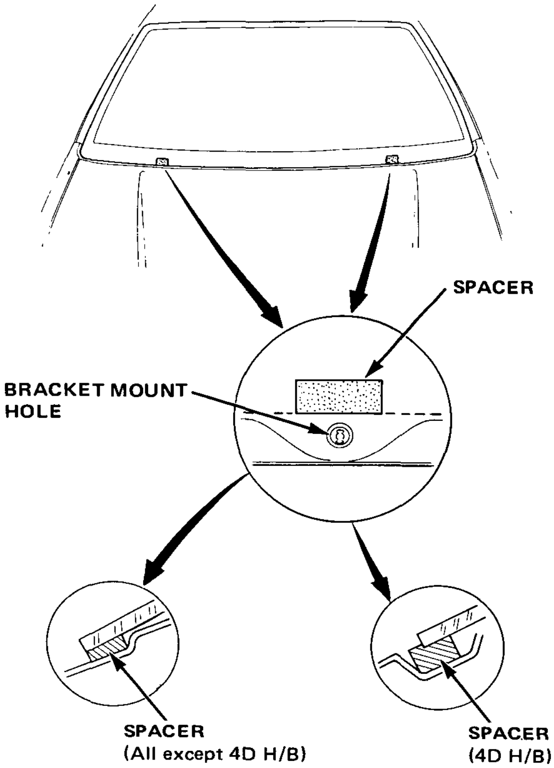
1. Scrape the old adhesive smooth with a knife, to a thickness of about 2 mm (0.08 in.) on the bonding surface around the entire windshield flange.

   NOTE:
   - Do not scrape down to the painted surface of the body; damaged paint will interfere with proper bonding.
   - Remove all traces of the rubber spacer material from the body.
   - Mask off surrounding surfaces before painting.

2. Clean the body bonding surface with a sponge dampened in alcohol.

   NOTE: After cleaning, keep oil, grease or water from getting on the surface.

3. Peel the lining off each spacer, then install the spacers by pressing them firmly into place at the locations shown.

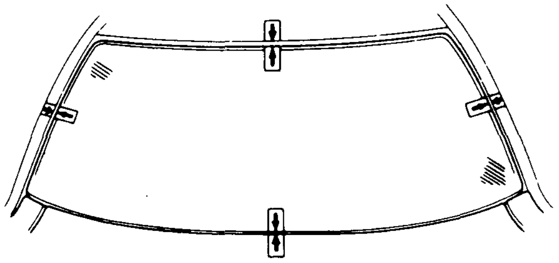


(cont'd)

Windshield

Installation (cont'd)

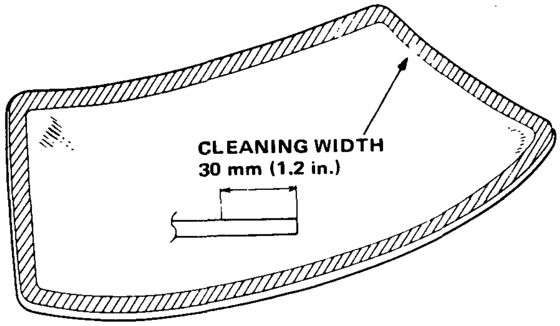
4. Set a new windshield upright on the spacers, and center it in the opening. Mark the location by marking lines across the glass and body with a grease pencil at the four points shown.



ALIGNMENT MARKS

5. If the glass is to be reinstalled, use a putty knife to scrape off all traces of old adhesive, then clean the glass surface with alcohol where new adhesive is to be applied.

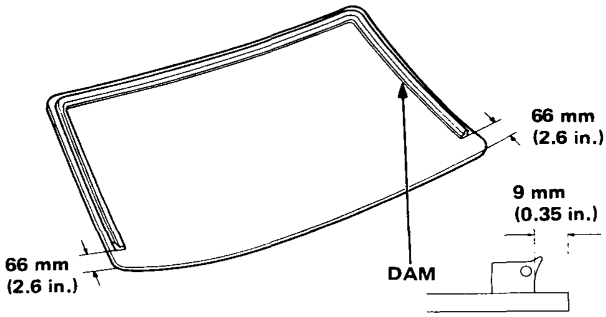
NOTE: Make sure the bonding surface is kept free of water, oil and grease.



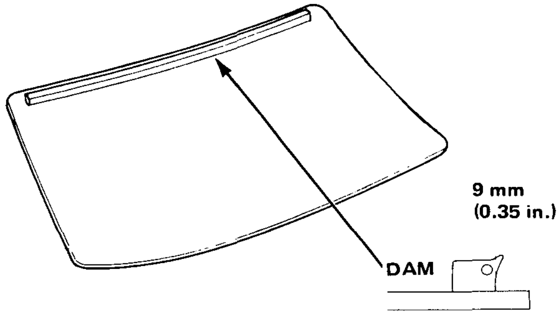
6. Glue the rubber dam to the inside face of the windshield as shown, to contain the adhesive during installation.

NOTE: Be careful not to touch the glass where adhesive will be applied.

Coupe:



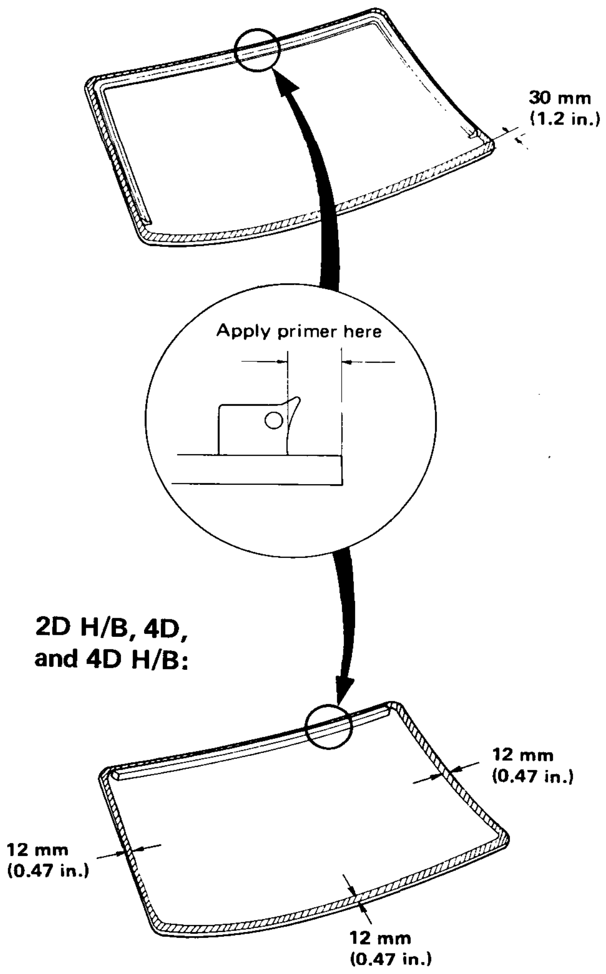
2D H/B, 4D, and 4D H/B:



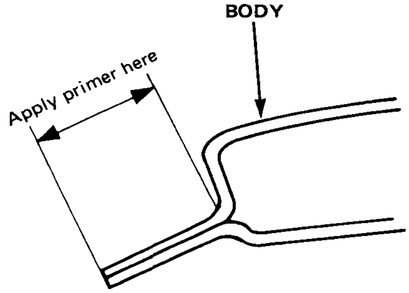
7. With a sponge, apply a light coat of glass primer around the edge of the glass as shown, then lightly wipe it off with gauze or cheesecloth.

NOTE:
- Do not apply body primer to the glass, and do not get body and glass primer sponges mixed up.
- Never touch the primed surfaces with your hands. If you do, the adhesive may not bond to the glass properly, cauing a leak after the windshield is installed.
- Keep water, dust, and abrasive materials away from the primed surface.

Coupe:



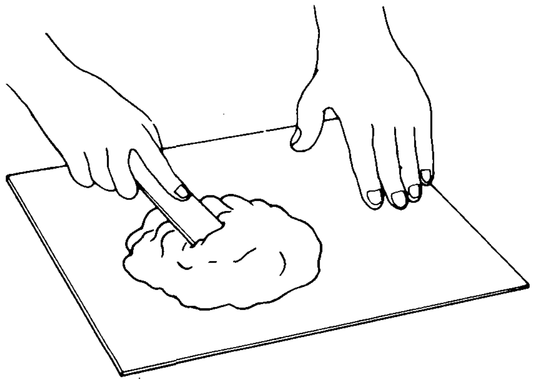
8. With a sponge, apply a light coat of body primer to the original adhesive remaining around the window opening flange. The glass should be installed 10 minutes after you apply the primer.



NOTE:
- Do not apply glass primer to the body, and be careful not to mix up glass and body primer sponges.
- Never touch the primed surfaces with your hands.
- Mask off the dashboard before painting the flange.

9. Thoroughly mix all the adhesive and hardener together on a glass or metal plate with a putty knife.

NOTE:
- Clean the plate with a sponge and alcohol before mixing.
- Follow the instructions that come with the adhesive.

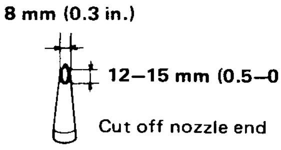


(cont'd)

Windshield

Installation (cont'd)

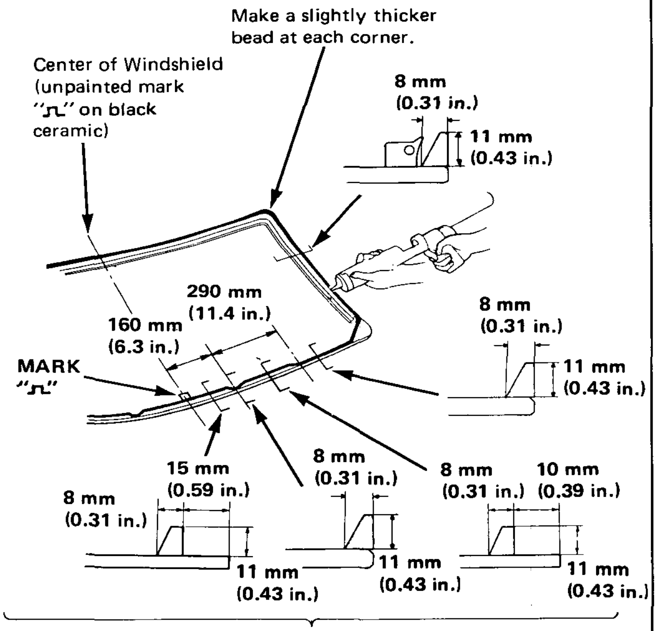
10. Before filling a cartridge, cut off the end of the nozzle at the angle shown.


8 mm (0.3 in.)
12–15 mm (0.5–0.6 in.)
Cut off nozzle end

11. Pack adhesive into the cartridge without air pockets, to ensure continuous delivery. Put the cartridge in a caulking gun, and run a bead of adhesive around the edge of the glass as shown.

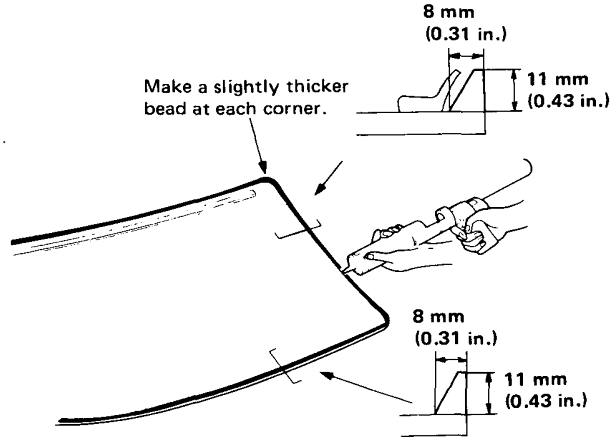
    NOTE: Apply the adhesive within 30 minutes after applying the glass primer.

Coupe:

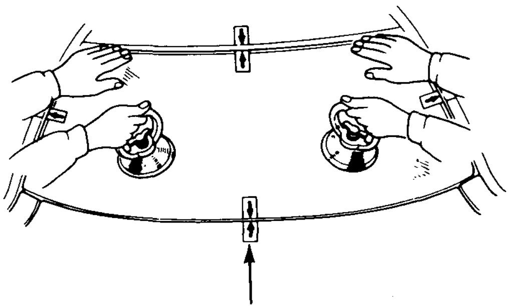

Make a slightly thicker bead at each corner.
Center of Windshield (unpainted mark "⎍" on black ceramic)
8 mm (0.31 in.)
11 mm (0.43 in.)
290 mm (11.4 in.)
160 mm (6.3 in.)
MARK "⎍"
8 mm (0.31 in.)
11 mm (0.43 in.)
15 mm (0.59 in.)
8 mm (0.31 in.)
8 mm (0.31 in.)
11 mm (0.43 in.)
8 mm (0.31 in.)
11 mm (0.43 in.)
8 mm (0.31 in.)
10 mm (0.39 in.)
11 mm (0.43 in.)

To prevent interference with the contour of the air scoop, run the bead of adhesive along the lower edge as shown.

2D H/B, 4D and 4D H/B:

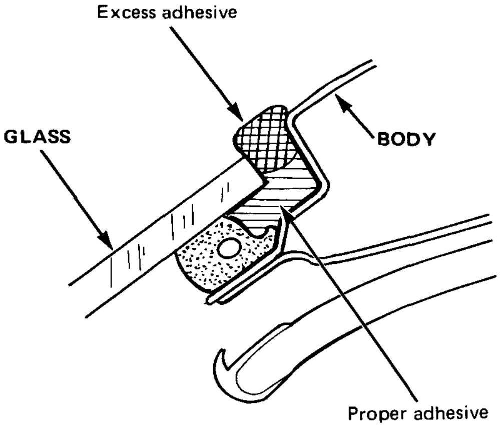

8 mm (0.31 in.)
Make a slightly thicker bead at each corner.
11 mm (0.43 in.)
8 mm (0.31 in.)
11 mm (0.43 in.)

12. Use suction cups to hold the glass over the opening, align it with the marks made in step 4 and set it down on the adhesive. Lightly push on the glass until its edge is fully seated on the adhesive all the way around.

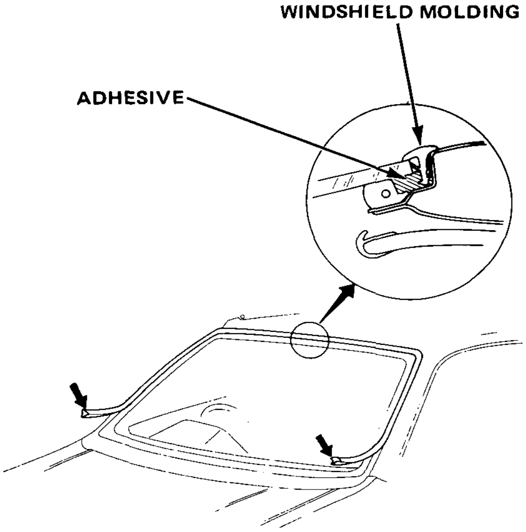

ALIGN MARKS

13. Scrape or wipe the excess adhesive off with a putty knife or gauze.

    NOTE: Wipe with a soft rag or towel dampened with unleaded gasoline to remove adhesive from a painted surface or glass.



14. Install the windshield molding evenly on both sides. Be sure that adhesive fully contacts the attaching surface by checking the molding at points 100 mm (3.9 in.) apart all the way around.



    NOTE: Wipe excess adhesive off with a soft rag or towel dampened with unleaded gasoline.

15. Let the molding air dry for about 5 minutes. Check that there are no gaps between the molding and the windshield or frame body all the way around. Seal any gaps in accordance with the instructions on page 22-40.

16. Spray water on the windshield 1—2 hours after installing the glass. Mark any leaks and let the windshield dry, then seal the leaking area with sealant.

    NOTE:
    - Do not squirt water on freshly applied adhesive.
    - Drive the car slowly if it must be driven during the first 4 hours after the windshield has been installed.

17. Reassemble all removed parts.

    NOTE:
    - Check that the end of the molding is set under the air scoop on both sides.
    - Install the interior mirror rubber damper after the adhesive has dryed thoroughly.

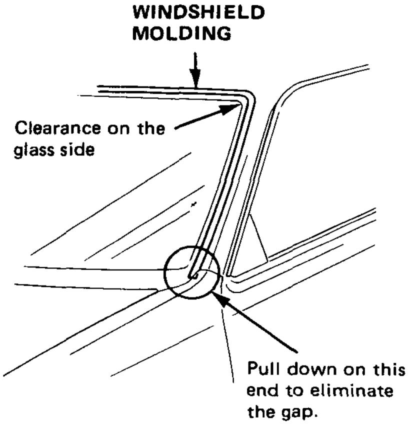
CAUTION: Do not drive the car on rough or uneven surfaces for at least 4 hours.

Windshield

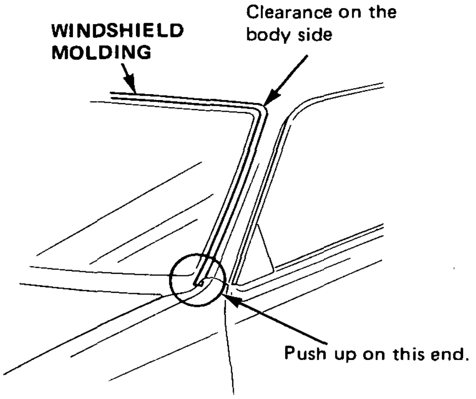
Sealing the Molding

Follow the procedures described below if there are gaps between the molding and windshield or frame body 5 minutes after the molding has been installed.

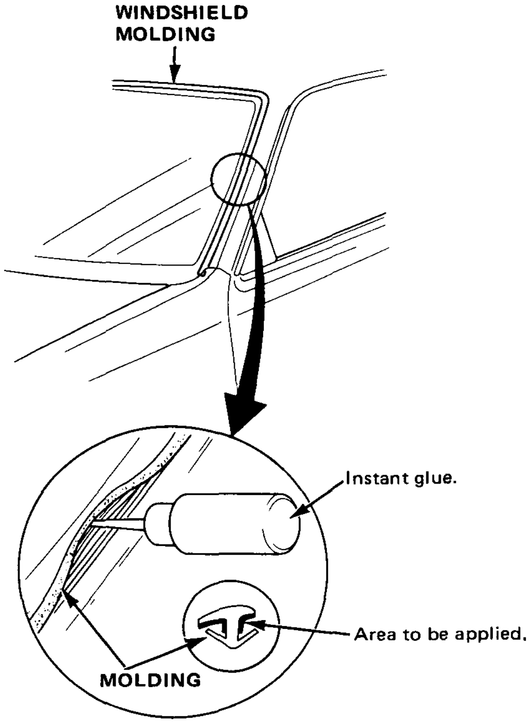
1. To seal a corner gap between the molding and glass:


WINDSHIELD MOLDING
Clearance on the glass side
Pull down on this end to eliminate the gap.

2. To seal a corner gap between the molding and body.


WINDSHIELD MOLDING
Clearance on the body side
Push up on this end.

3. To seal a molding gap in a straight area:


WINDSHIELD MOLDING
Instant glue.
Area to be applied.
MOLDING

- Raise the molding at the area where gap exists; apply small amount of an instant glue to the area and hold the molding against the glass and/or frame body for at least 20 seconds.

  CAUTION: Avoid "instant glue" contact with your skin. See a doctor immediately if it gets in your eyes. Avoid getting the glue on the car glass or body.

Rear Window

Removal

CAUTION:

- **Wear gloves to remove and install the glass.**
- **Do not damage the defroster printed circuit.**

1. To remove the rear window glass, first remove the:

Coupe:

- Tailgate trim panel (page 22-122).
- Rear spoiler (page 22-115).

2D H/B:

- Tailgate trim panel (page 22-123).
- Rear spoiler (page 22-116).
- Rear wiper (page 22-129).

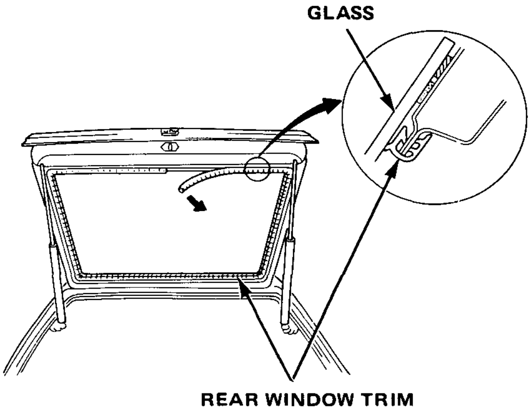
4D:

- Rear shelf (page 22-60).
- Rear roof trim (page 22-74).

4D H/B:

- Tailgate trim panel (page 22-123).
- Tailgate spoiler (page 22-116)
- Rear wiper (page 22-129).

2. Remove the rear window trim (except 4D)

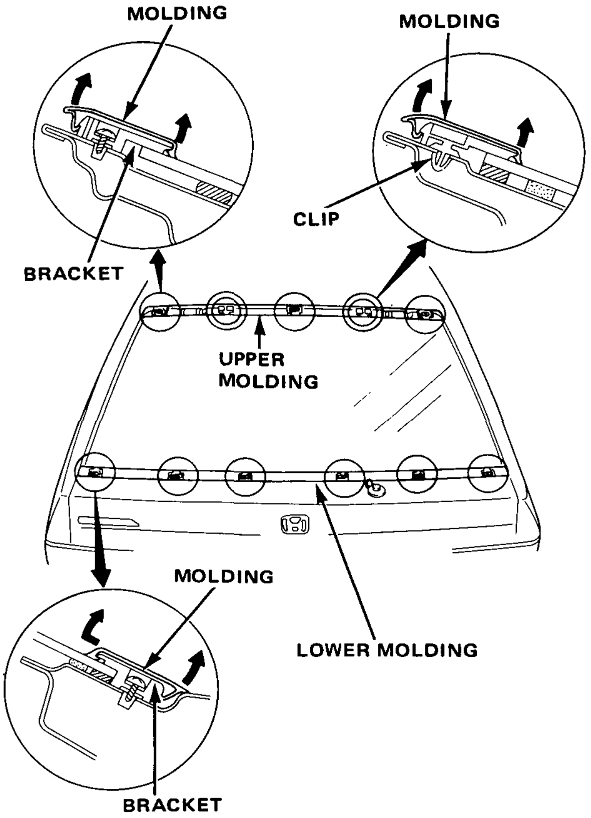

GLASS
REAR WINDOW TRIM

3. Disconnect the defroster leads, and remove their holders.

4. Remove the upper and lower moldings.

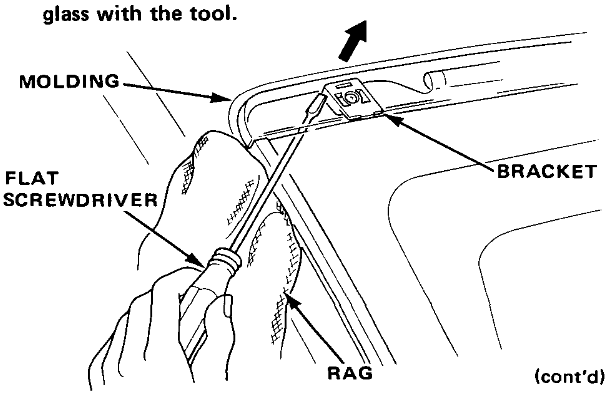
Coupe:

- Remove the upper and lower moldings, by releasing the clips and brackets at the locations shown.


MOLDING
MOLDING
CLIP
BRACKET
UPPER MOLDING
MOLDING
LOWER MOLDING
BRACKET

- Lift the inside edge of the molding slightly, then slip a flat screwdriver to the side of clip or bracket, and push the edge of molding with the end of screwdriver, to release the moldings.

CAUTION: Be careful not to damage the body and glass with the tool.


MOLDING
BRACKET
FLAT SCREWDRIVER
RAG

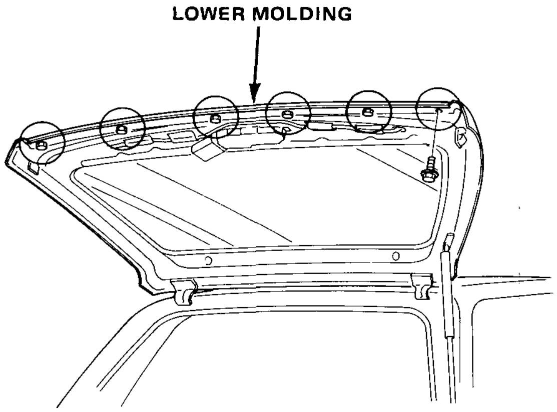
(cont'd)

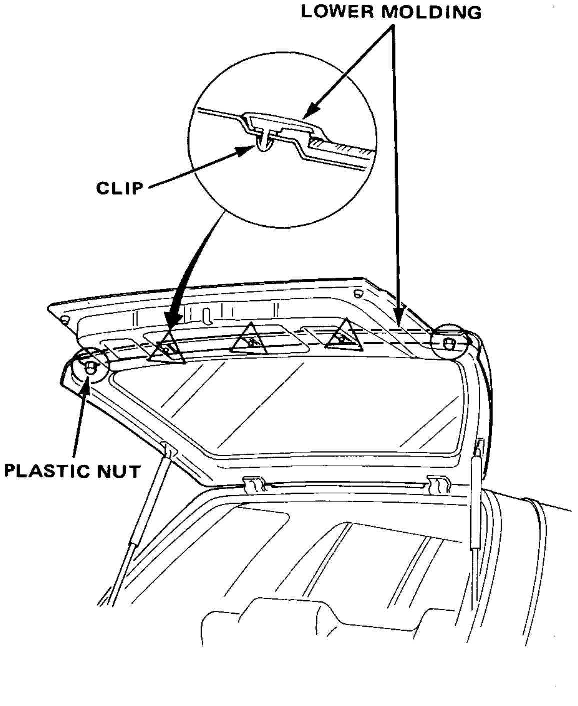
Rear Window

Removal (cont'd)

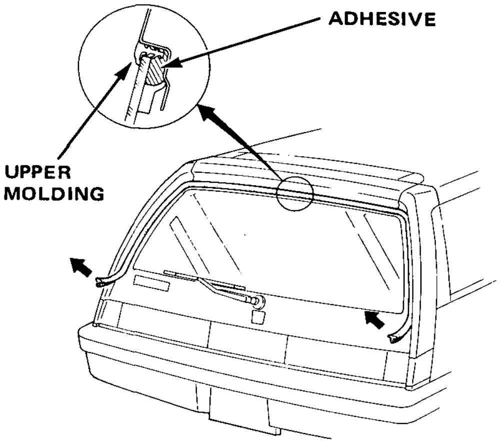
2D H/B and 4D H/B:

- Remove the lower molding by removing the bolts (2D H/B) or plastic nuts (4D H/B), and prying up the retainer clips (4D H/B).


LOWER MOLDING

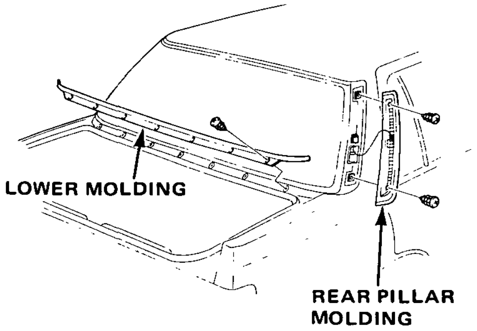

LOWER MOLDING
CLIP
PLASTIC NUT

- Peel off the upper molding.

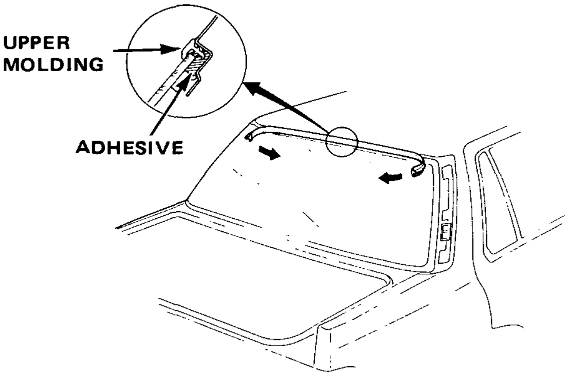

ADHESIVE
UPPER
MOLDING

4D:

- Remove the rear pillar molding and the lower molding, by removing the screws.

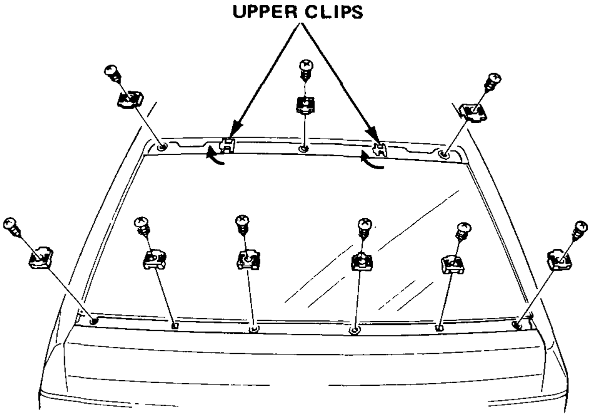

LOWER MOLDING
REAR PILLAR
MOLDING

- Peel off the upper molding.

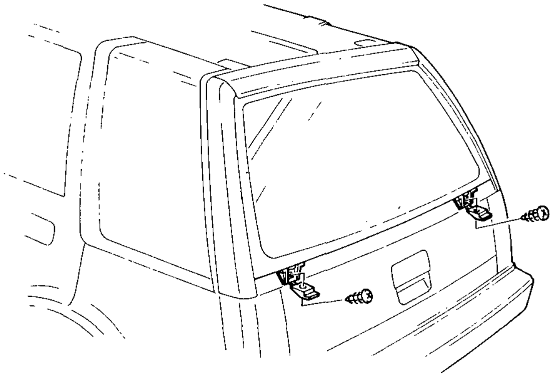

UPPER
MOLDING
ADHESIVE

5. Remove the screws and all the brackets. Then, on the coupe, turn the 2 upper clips 90°.

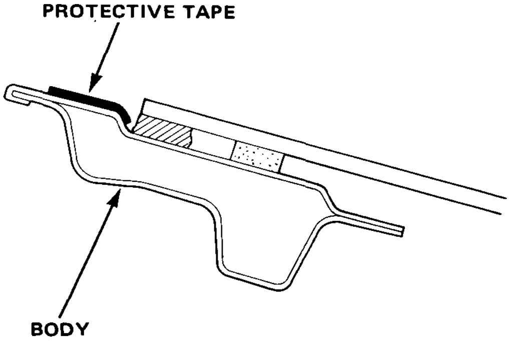
Coupe:



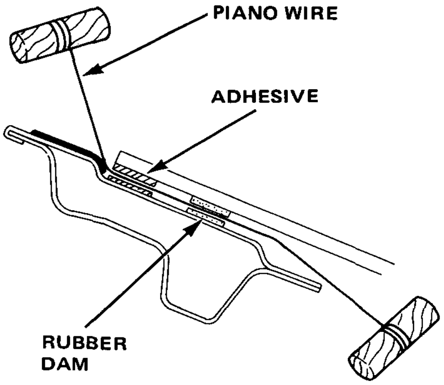
4D H/B:



6. Apply protective tape along the edge of the body next to the glass as shown.

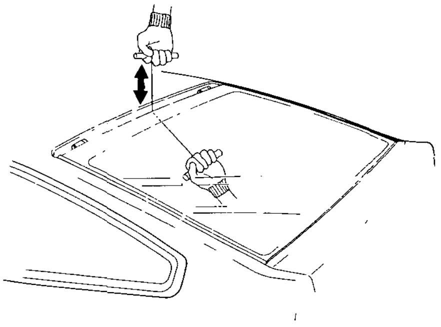


7. Using an awl, make a hole through the glass adhesive from inside the car. Push piano wire through the hole and wrap each end around a piece of wood.



8. With a helper on the outside, pull the wire back and forth in a sawing motion and carefully cut through the adhesive around the entire glass.

CAUTION: Hold the piano wire as close to the glass as possible to prevent damage to the body.



9. Cut the rubber spacers away from body with a knife; they are cemented in place.

NOTE: Replace the rubber spacers with new ones whenever the glass has been removed.

Rear Window

Installation

1. Scrape the old adhesive smooth with a knife, to a thickness of about 2 mm (0.08 in) on the bonding surface around the entire window flange.

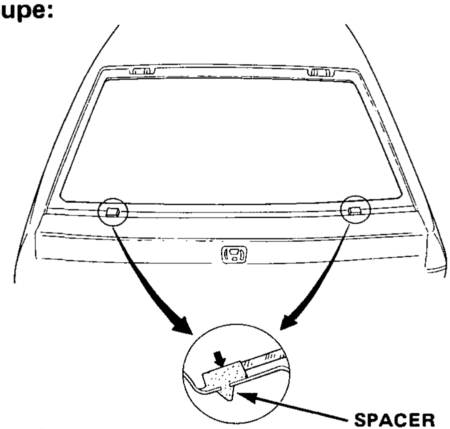
   NOTE:
   - Do not scrape down to the painted surface of the body; damaged paint will interfere with proper bonding.
   - Remove all traces of the rubber spacer material from the body.
   - Mask off surrounding surfaces before painting.

2. Clean the body bonding surface with a sponge dampened in alcohol.

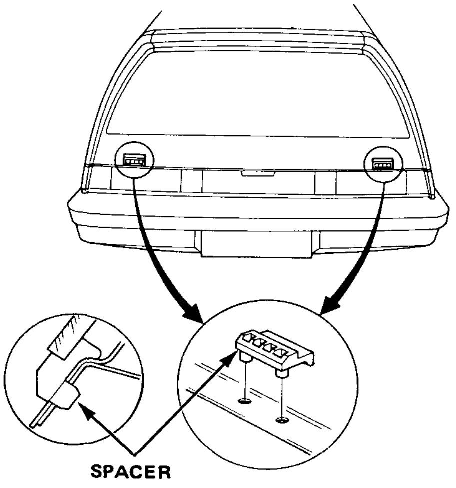
   NOTE: After cleaning, keep oil, grease or water from getting on the surface.

3. Install the spacers as shown.

Coupe:

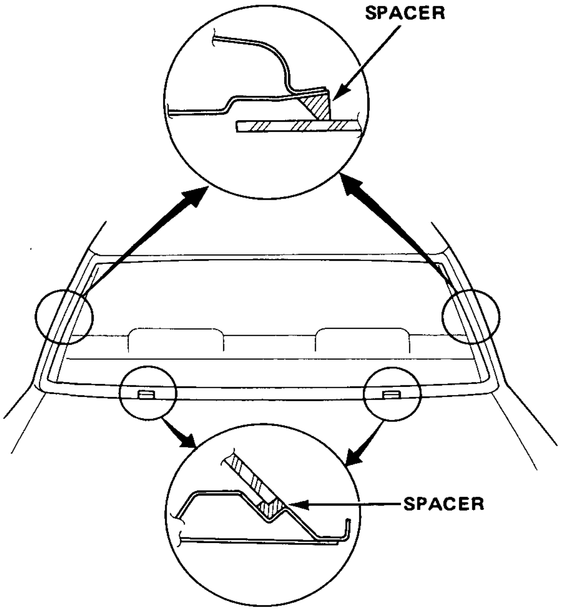


2D H/B:

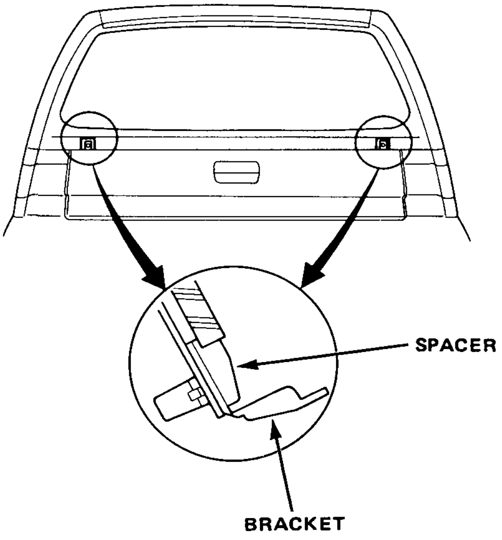


4D:

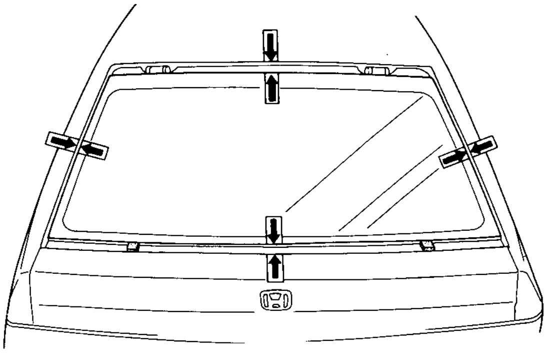
- Peel the lining off the spacer, install the spacers by pressing them firmly.



4D H/B:



4. Set a new window upright on the spacers, and center it in the opening. Mark the location by marking lines across the glass and body with a grease pencil at the four points shown.

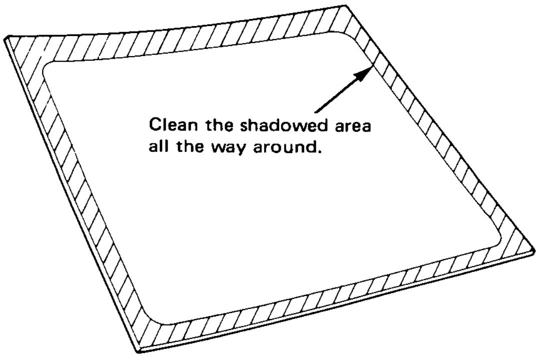


ALIGNMENT MARKS

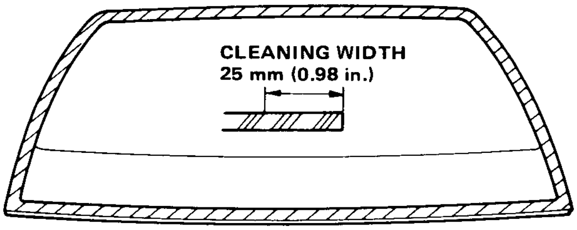
5. If the glass is to be reinstalled, use a putty knife to scrape off all traces of old adhesive, then clean the glass surface with alcohol where new adhesive is to be applied.

NOTE: Make sure the bonding surface is kept free of water, oil and grease.

Coupe:


Clean the shadowed area all the way around.

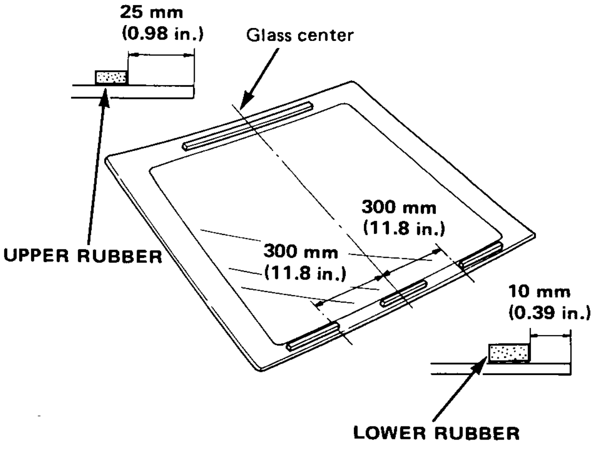
2D H/B, 4D, and 4D H/B:


CLEANING WIDTH
25 mm (0.98 in.)

6. Glue the rubber dam to the inside face of the windshield as shown, to contain the adhesive during installation.

NOTE: Be careful not to touch the glass where adhesive will be applied.

Coupe:

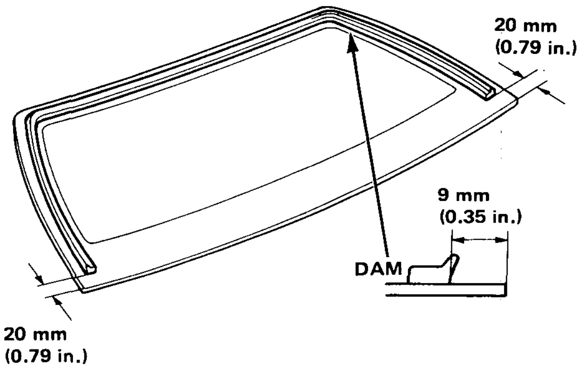

25 mm
(0.98 in.)
Glass center
300 mm
(11.8 in.)
300 mm
(11.8 in.)
UPPER RUBBER
10 mm
(0.39 in.)
LOWER RUBBER

(cont'd)

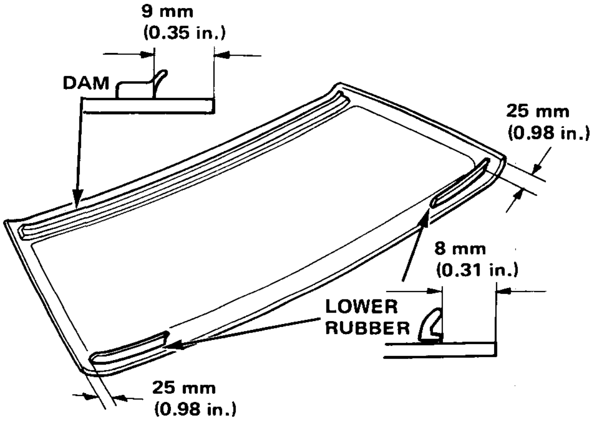
Rear Window

Installation (cont'd)

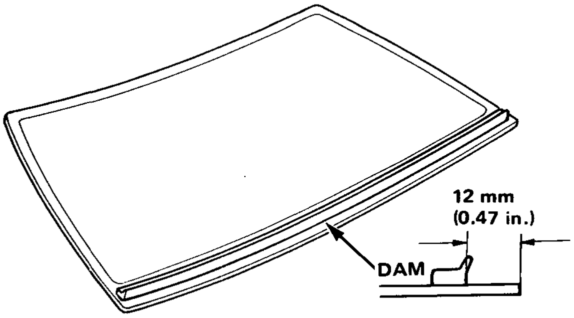
2D H/B:


20 mm
(0.79 in.)
9 mm
(0.35 in.)
DAM
20 mm
(0.79 in.)

4D:


9 mm
(0.35 in.)
DAM
25 mm
(0.98 in.)
8 mm
(0.31 in.)
LOWER
RUBBER
25 mm
(0.98 in.)

4D H/B:

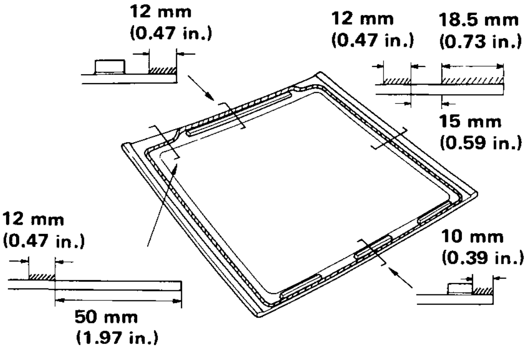

12 mm
(0.47 in.)
DAM

7. With a sponge, apply a light coat of glass primer around the edge of the glass as shown, then lightly wipe with gauze or cheesecloth.

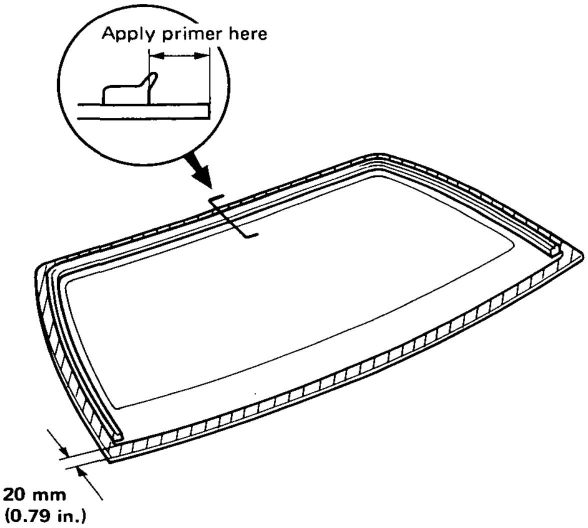
NOTE:

- Do not apply body primer to the glass, and do not get body and glass primer sponges mixed up.
- Never touch the primed surfaces with your hands. If you do, the adhesive may not bond to the glass properly, causing a leak after the glass is installed.
- Keep water, dust, and abrasive materials away from the primed surface.

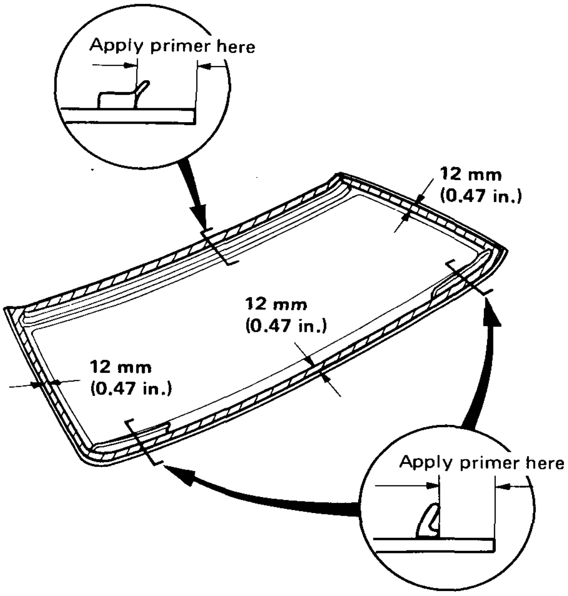
Coupe:


12 mm
(0.47 in.)
12 mm
(0.47 in.)
18.5 mm
(0.73 in.)
15 mm
(0.59 in.)
12 mm
(0.47 in.)
10 mm
(0.39 in.)
50 mm
(1.97 in.)

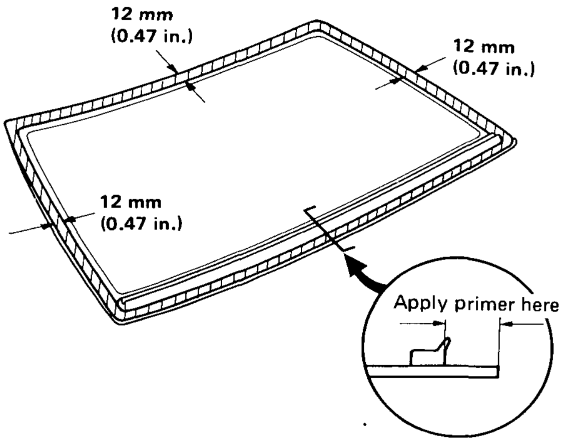
2D H/B:


Apply primer here
20 mm
(0.79 in.)

4D:

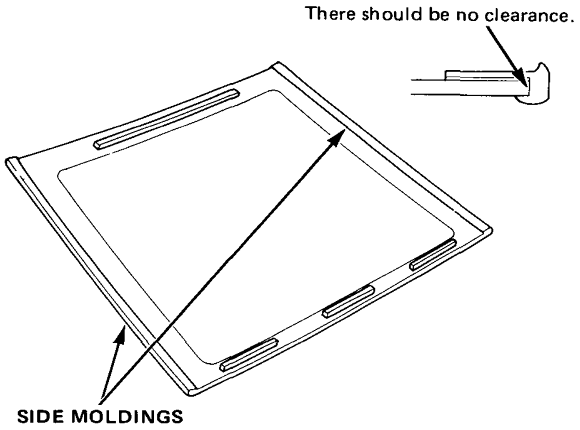

Apply primer here
12 mm
(0.47 in.)
12 mm
(0.47 in.)
12 mm
(0.47 in.)
Apply primer here

4D H/B:


12 mm
(0.47 in.)
12 mm
(0.47 in.)
12 mm
(0.47 in.)
Apply primer here

8. For Coupe only, peel the lining from the side moldings after the glass primer has dryed, and install them on the glass as shown.

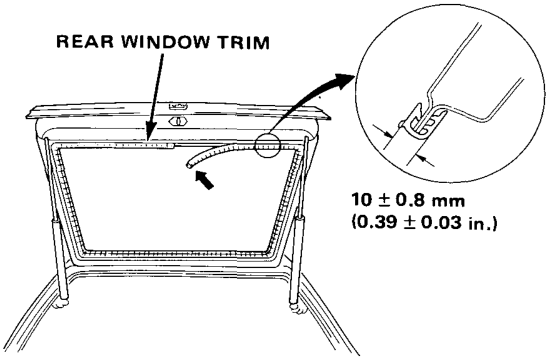
   NOTE: Be careful not to touch the glass where adhesive will be applied.


There should be no clearance.
SIDE MOLDINGS

9. Install the rear window trim in the frame (except 4D).

   NOTE:
   - Install the rear window trim with the wide end on the interior side.
   - When attaching the rear window trim, make sure the thickness is even all the way around.

Coupe:

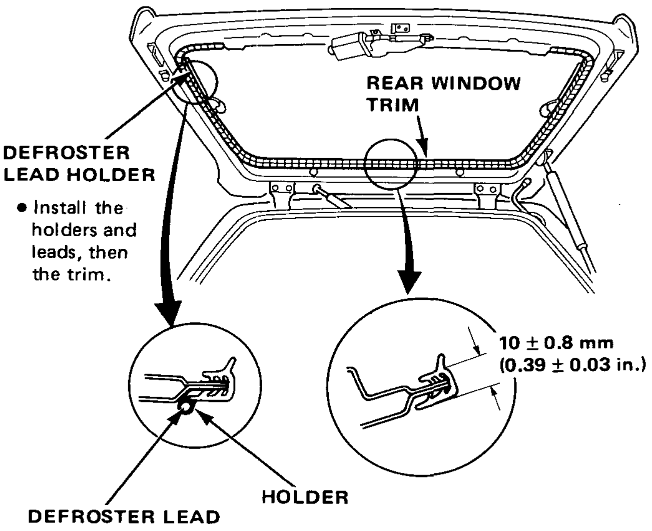

REAR WINDOW TRIM
10 ± 0.8 mm
(0.39 ± 0.03 in.)

(cont'd)

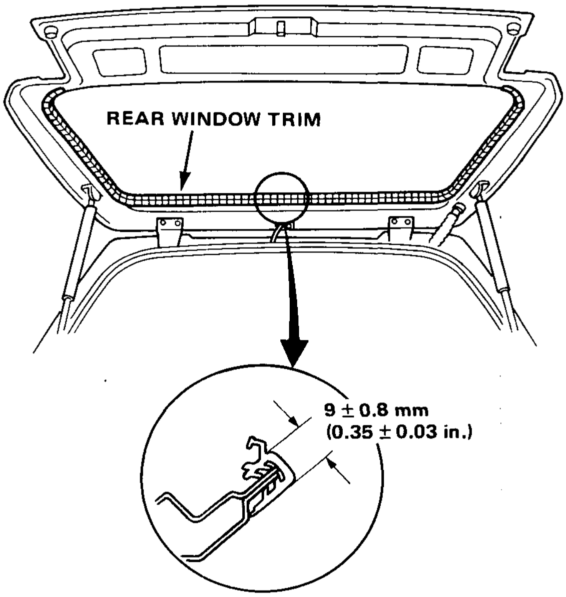
Rear Window

Installation (cont'd)

2D H/B:


REAR WINDOW TRIM
DEFROSTER LEAD HOLDER
• Install the holders and leads, then the trim.
10 ± 0.8 mm (0.39 ± 0.03 in.)
HOLDER
DEFROSTER LEAD

4D H/B:

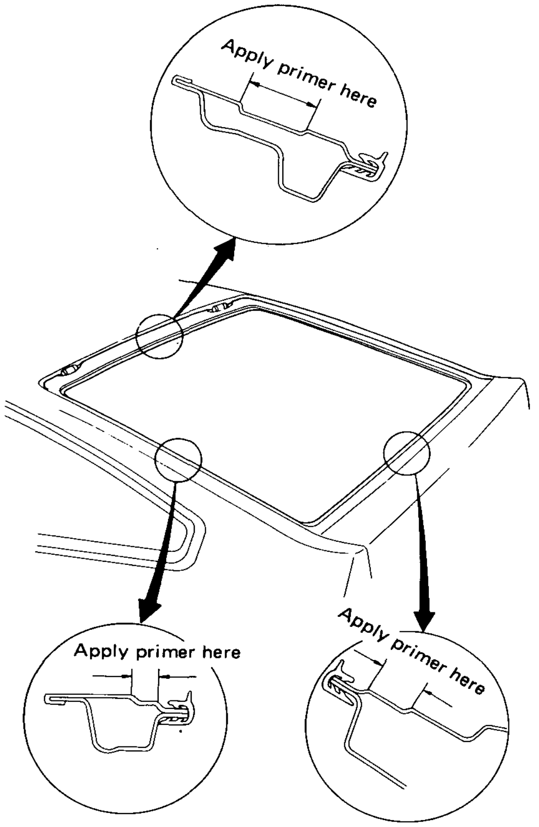

REAR WINDOW TRIM
9 ± 0.8 mm (0.35 ± 0.03 in.)

10. With a sponge, apply a light coat of body primer to the original adhesive remaining around the window opening flange. The glass should be installed 10 minutes after you apply the primer.

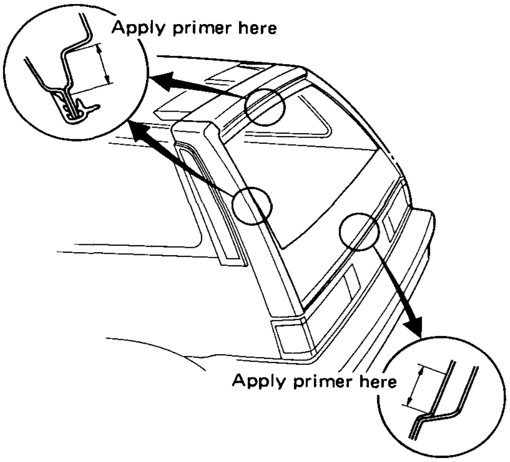
NOTE:

- Do not apply glass primer to the body, and be careful not to mix up glass and body primer sponges.
- Never touch the primed surfaces with your hands.

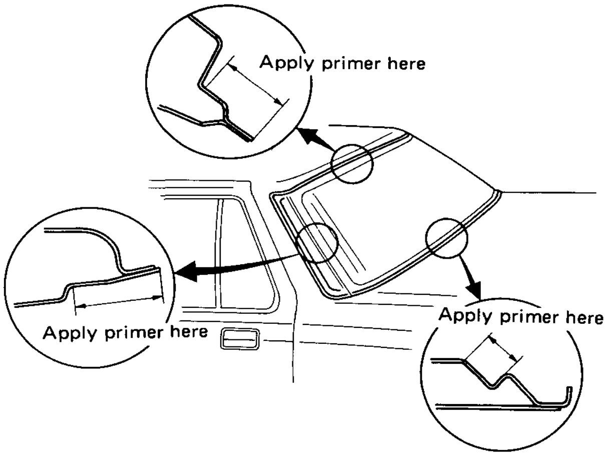
Coupe:


Apply primer here
Apply primer here
Apply primer here

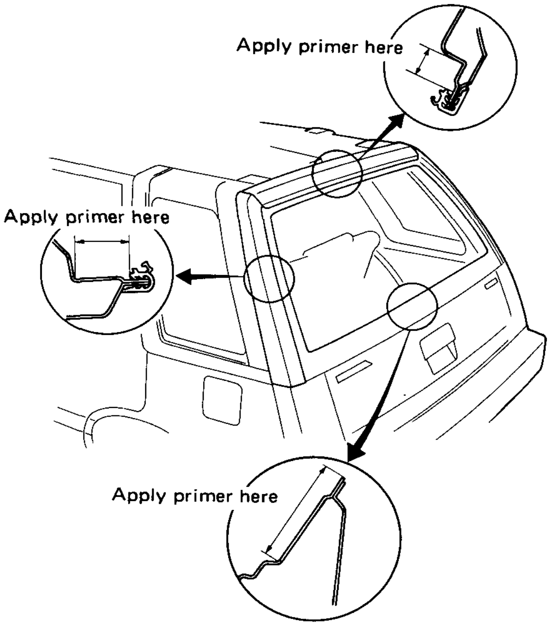
2D H/B:


Apply primer here
Apply primer here

4D:


Apply primer here
Apply primer here
Apply primer here

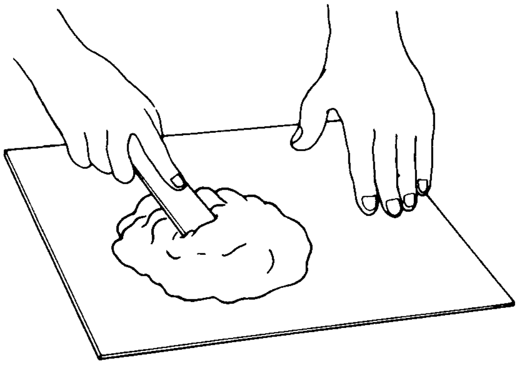
4D H/B:


Apply primer here
Apply primer here
Apply primer here

11. Thoroughly mix all the adhesive and hardener together on a glass or metal plate with a putty knife.

    NOTE:

    - Clean the plate with a sponge and alcohol before mixing.
    - Follow the instructions that come with the adhesive.

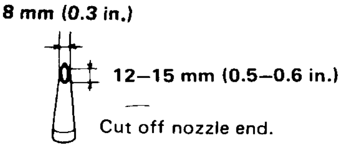


(cont'd)

Rear Window

Installation (cont'd)

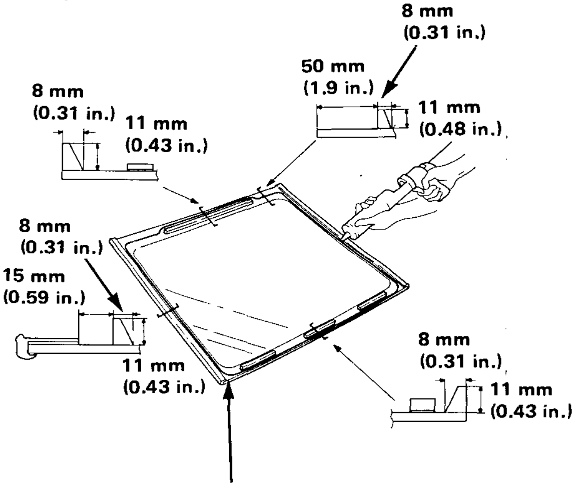
12. Before filling a cartridge, cut off the end of the nozzle at the angle shown.


8 mm (0.3 in.)
12–15 mm (0.5–0.6 in.)
Cut off nozzle end.

13. Pack adhesive into the cartridge without air pockets, to ensure continuous delivery. Put the cartridge in a caulking gun, and run a bead of adhesive around the edge of the glass as shown.

    NOTE: Apply the adhesive within 30 minutes after applying the glass primer.

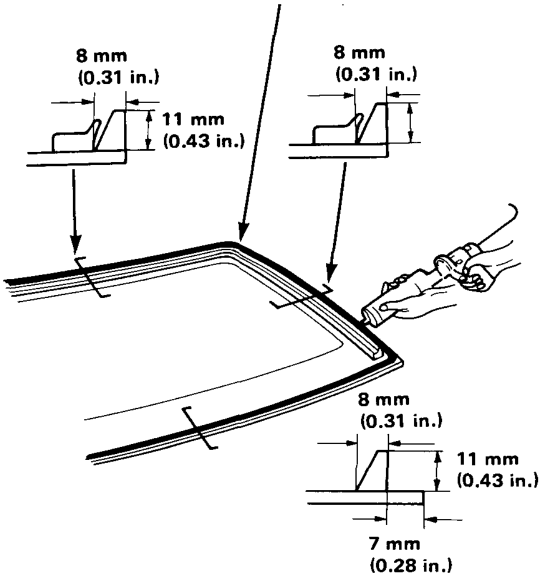
Coupe:


8 mm
(0.31 in.)
50 mm
(1.9 in.)
11 mm
(0.48 in.)
8 mm
(0.31 in.)
11 mm
(0.43 in.)
8 mm
(0.31 in.)
15 mm
(0.59 in.)
11 mm
(0.43 in.)
8 mm
(0.31 in.)
11 mm
(0.43 in.)

Make a slightly thicker bead at each corner.

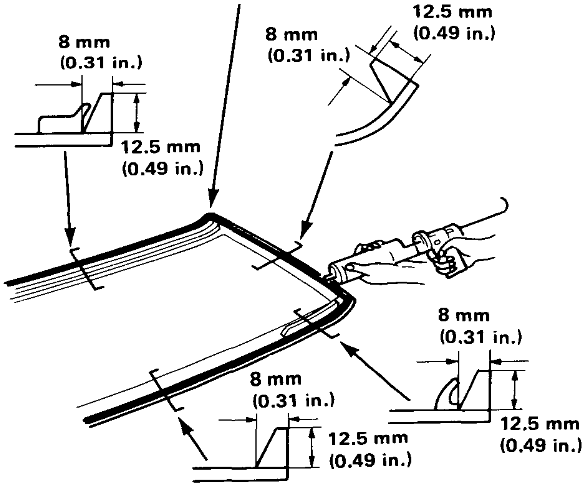
2D H/B:

Make a slightly thicker bead at each corner.

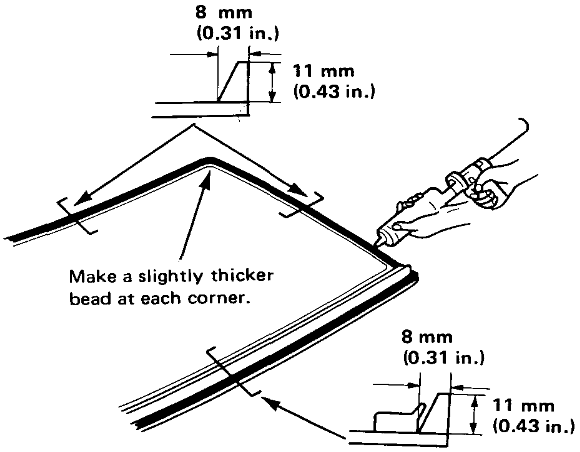

8 mm
(0.31 in.)
11 mm
(0.43 in.)
8 mm
(0.31 in.)
8 mm
(0.31 in.)
11 mm
(0.43 in.)
7 mm
(0.28 in.)

4D:

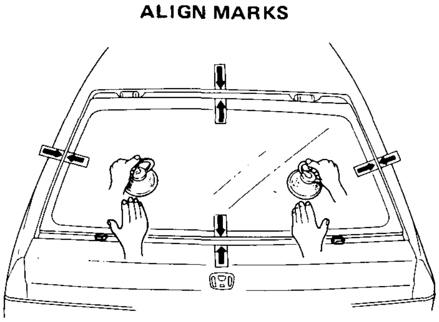
Make a slightly thicker bead at each corner.


12.5 mm
(0.49 in.)
8 mm
(0.31 in.)
8 mm
(0.31 in.)
12.5 mm
(0.49 in.)
8 mm
(0.31 in.)
12.5 mm
(0.49 in.)
8 mm
(0.31 in.)
12.5 mm
(0.49 in.)

4D H/B:

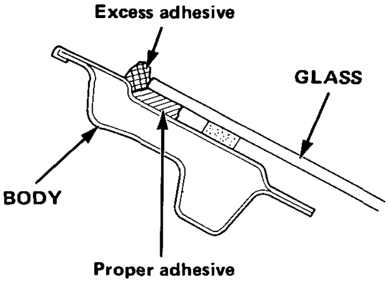

8 mm
(0.31 in.)
11 mm
(0.43 in.)
Make a slightly thicker bead at each corner.
8 mm
(0.31 in.)
11 mm
(0.43 in.)

14. Use suction cups to hold the glass over the opening, align it with the marks made in step 4 and set it down on the adhesive. Lightly push on the glass until its edge is fully seated on the adhesive all the way around.

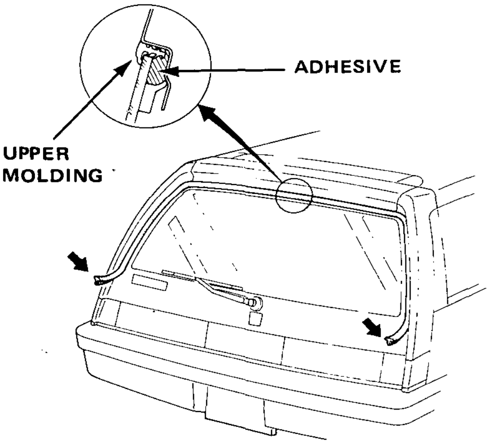

ALIGN MARKS

15. Scrape or wipe the excess adhesive off with a putty knife or gauze.

NOTE: Wipe with a soft rag or towel dampened with unleaded gasoline to remove adhesive from a painted surface or glass.


Excess adhesive
GLASS
BODY
Proper adhesive

16. Install the upper molding evenly on both sides. Be sure that adhesive fully contacts the attaching surface by checking the molding at points 100 mm (3.9 in.) apart all the way around (except coupe).


ADHESIVE
UPPER
MOLDING

NOTE: Wipe excess adhesive off with a soft rag or towel dampened with unleaded gasoline.

(cont'd)

Rear Window

Installation (cont'd)

17. Let the molding air dry for about 5 minutes. Check that there are no gaps between the molding and the glass or frame body all the way around. Seal any gaps in accordance with the instructions described in page 22-40.

18. Secure the glass by installing the brackets (see page 22-43).

19. Spray water on the windshield 1–2 hours after installing the glass. Mark any leaks and let the windshield dry, then seal leaking area with sealant.

    NOTE:
    - Do not squirt water on freshly applied adhesive.
    - Drive the car slowly if it must be driven during the first 4 hours after the glass has been installed.

20. Install the moldings in the reverse order of removal (see pages 22-41 and 42).

21. Install the defroster leads and their holders (except 2D H/B).

    NOTE: For the Coupe, to secure the defroster lead holders, apply a small amount of adhesive before installing.

22. Reassemble all removed parts.

    CAUTION: Do not drive the car on rough or uneven surfaces for at least 4 hours.

Quarter Glass (Coupe and 4D H/B)

Removal

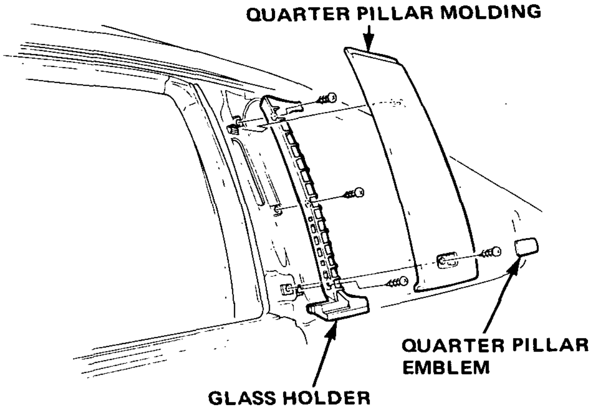
1. To remove the quarter glass, first remove the quarter window trim.

2. Remove the quarter pillar molding as follows.

Coupe:

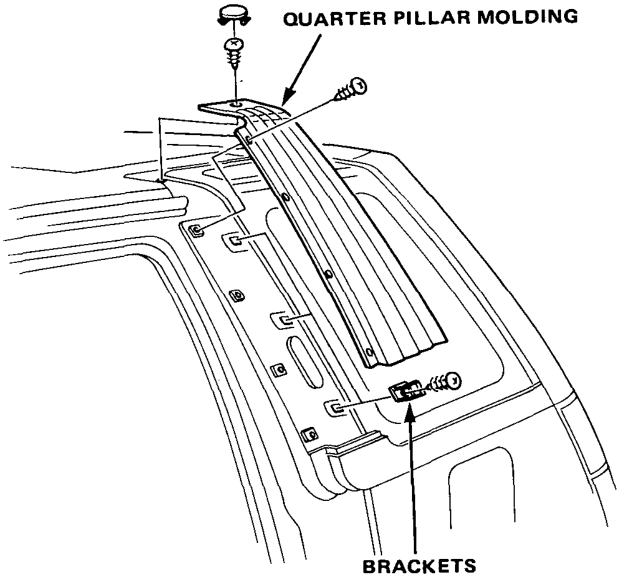
- Pry off the quarter pillar emblem with a screwdriver, then remove the screw. Remove the pillar molding by sliding toward the quarter window. Then remove the screws and glass holder.

CAUTION: Be careful not to damage the body and glass by sliding the molding.



4D H/B:

- Remove the screws and quarter pillar molding, then the brackets.

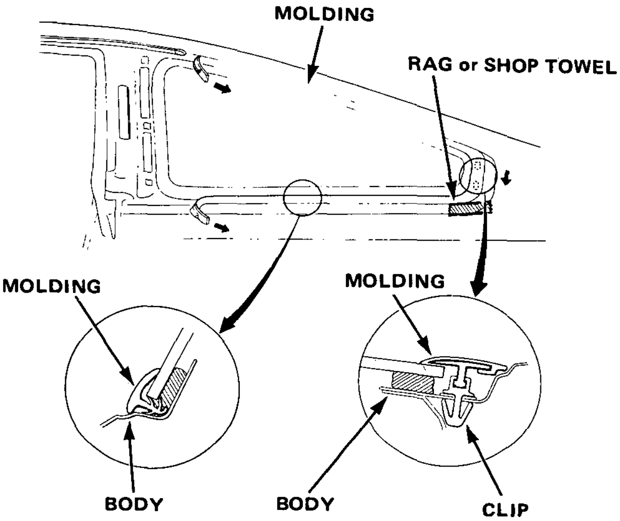


3. Remove the molding as follows.

Coupe:

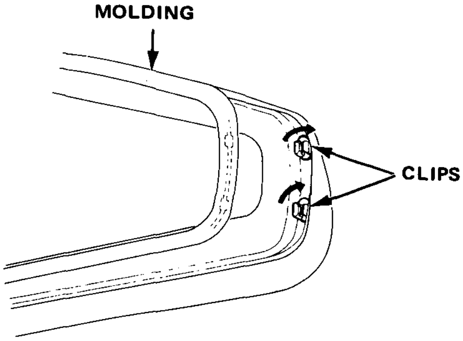
- Pry the molding off the body and glass by pulling it as shown. To release the molding clips, pull down on the molding.

  NOTE: Protect the body finish with a rag or shop towel when pulling down on the molding to release the clips.



MOLDING
RAG or SHOP TOWEL
MOLDING
MOLDING
BODY
BODY
CLIP

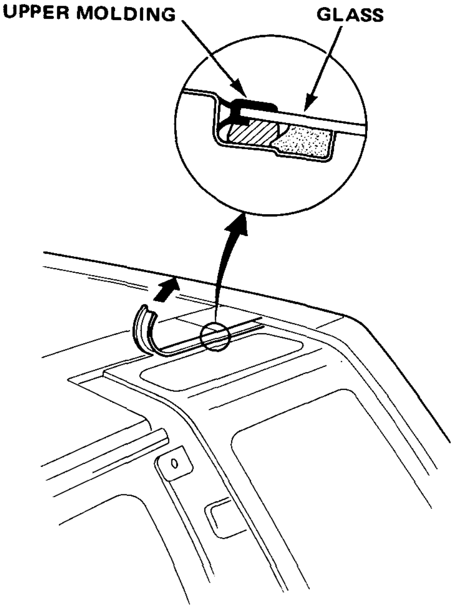
- For replacement, the 2 clips can be removed by turning them 90°.



MOLDING
CLIPS

4D H/B:

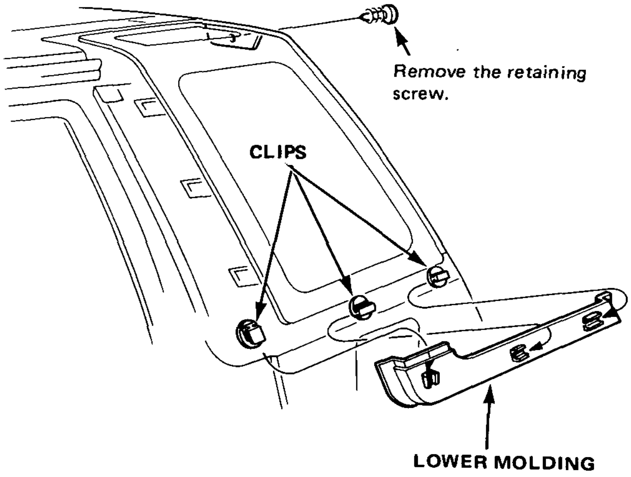
- Peel the upper molding off the glass.



UPPER MOLDING
GLASS

- To remove the lower molding, first carefully slide the front of it downward. Then slide it forward to free it from the other clips.

CAUTION: Be careful not to damage the body and glass by sliding the molding pieces.



Remove the retaining screw.
CLIPS
LOWER MOLDING

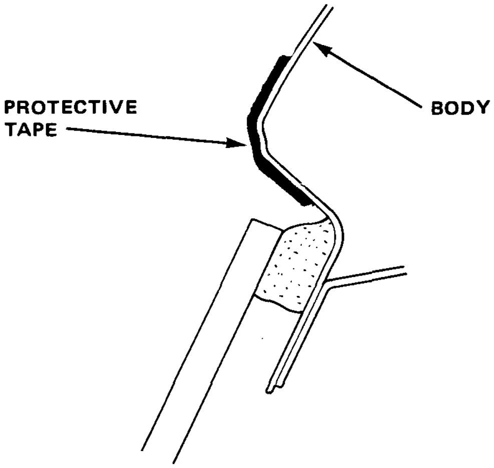
- For replacement, the lower clips can be removed by turning them 90°.

(cont'd)

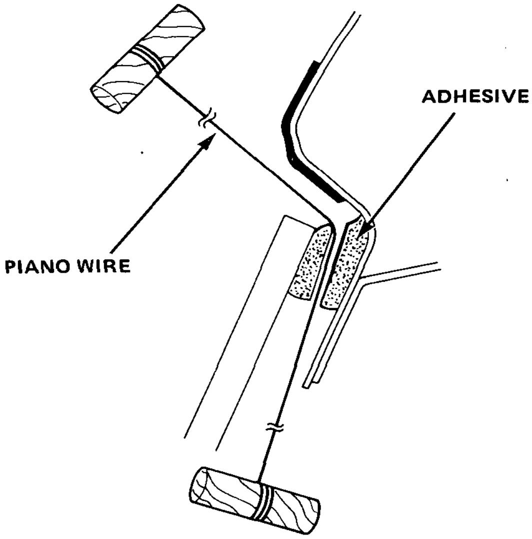
Quarter Glass (Coupe and 4D H/B)

Removal (cont'd)

4. Apply protective tape along the edge of the body next to the glass as shown.

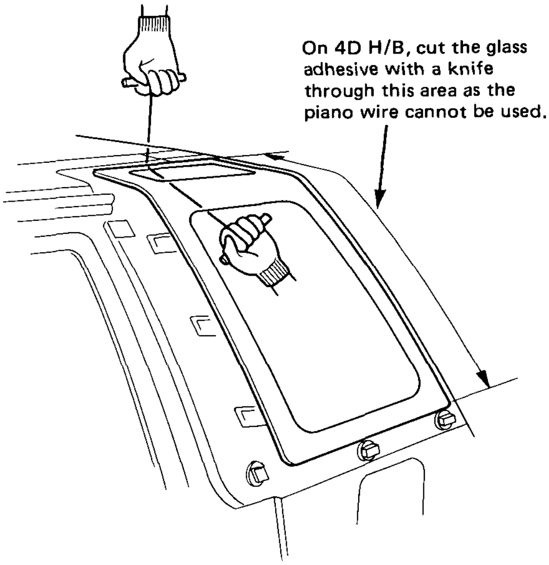

PROTECTIVE TAPE
BODY

5. Using an awl, make a hole through the glass adhesive from inside the car. Push piano wire through the hole and wrap each end around a piece of wood.


ADHESIVE
PIANO WIRE

6. With a helper on the outside, pull the wire back and forth in a sawing motion and carefully cut through the adhesive around the entire glass.

CAUTION: Hold the piano wire as close to the glass as possible to prevent damage to the body.


On 4D H/B, cut the glass adhesive with a knife through this area as the piano wire cannot be used.

7. Cut the rubber spacers away from body with a knife; they are cemented in place.

NOTE: Replace the rubber spacers with new ones whenever the glass has been removed.

Installation

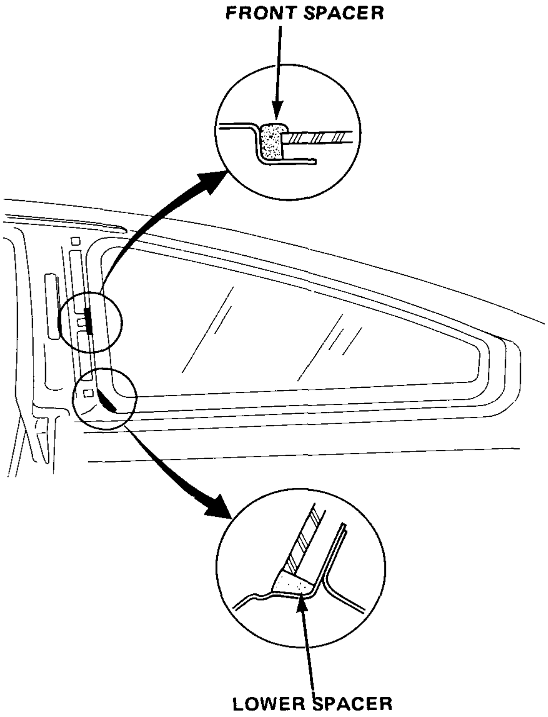
1. Scrape the old adhesive smooth with a knife, to a thickness of about 2 mm (0.08 in.) on the bonding surface around the entire window glass flange.

   NOTE:
   - Do not scrape down to the painted surface of the body; damaged paint will interfere with proper bonding.
   - Remove all traces of the rubber spacer material from the body.
   - Mask off surrounding surfaces before painting.

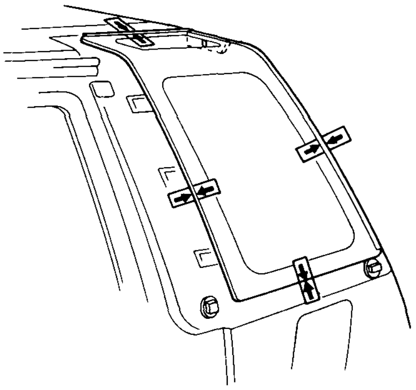
2. Clean the body bonding surface with a sponge dampened in alcohol.

   NOTE: After cleaning, keep oil, grease or water from getting on the surface.

3. Peel the lining off each spacer, then install the spacers by pressing them firmly into place at the locations shown. (Coupe only)



4. Set a new glass on the spacers, and center it in the opening. Mark the location by marking lines across the glass and body with a grease pencil at the four points shown.

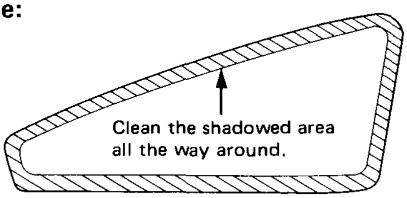


ALIGNMENT MARKS

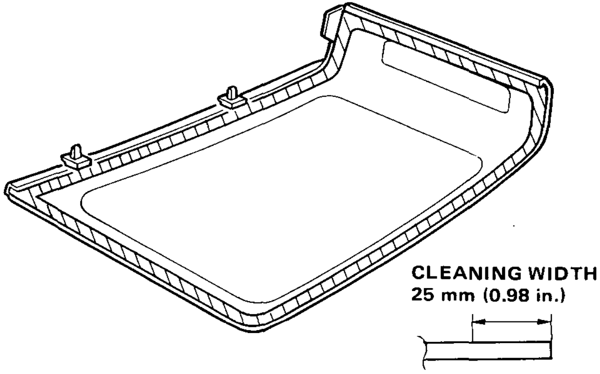
5. If the glass is to be reinstalled, use a putty knife to scrape off all traces of old adhesive, then clean the glass surface with alcohol where new adhesive is to be applied.

   NOTE: Make sure the bonding surface is kept free of water, oil and grease.

Coupe:



4D H/B:



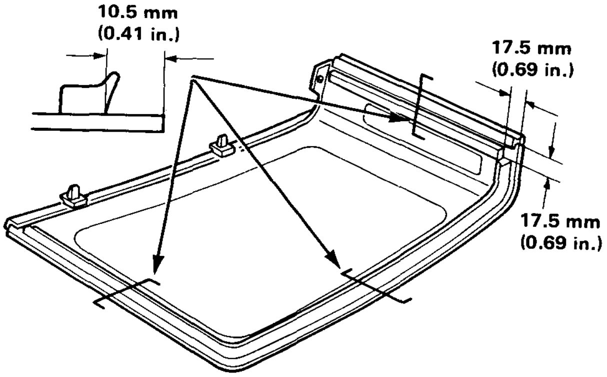
(cont'd)

Quarter Glass (Coupe and 4D H/B)

Installation (cont'd)

6. Glue the rubber dam to the inside face of the glass as shown, to contain the adhesive during installation. (4D H/B only).

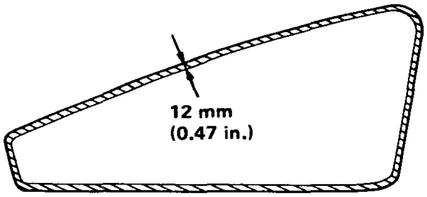
   NOTE: Be careful not to touch the glass where adhesive will be applied.


10.5 mm
(0.41 in.)
17.5 mm
(0.69 in.)
17.5 mm
(0.69 in.)

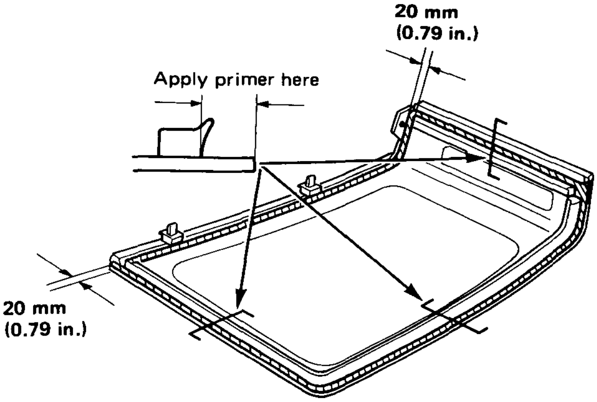
7. With a sponge, apply a light coat of glass primer around the edge of glass as shown, then lightly wipe it off with gauze or cheesecloth.

   NOTE:
   - Do not apply body primer to the glass, and do not get body and glass primer sponges mixed up.
   - Never touch the primed surfaces with your hands. If you do, the adhesive may not bond to the glass properly, causing a leak after the glass is installed.
   - Keep water, dust, and abrasive materials away from the primed surface.

Coupe:

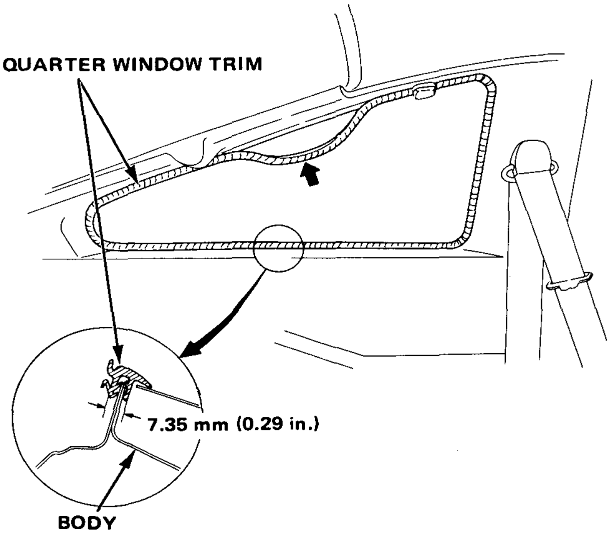


4D H/B:


20 mm
(0.79 in.)
Apply primer here
20 mm
(0.79 in.)

8. Install the quarter window trim. (Coupe only)

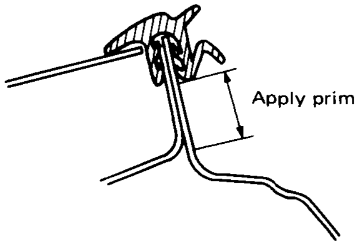
   NOTE: When attaching the trim, make sure the thickness is evenly 7.35 mm (0.29 in.) all the way around.


QUARTER WINDOW TRIM
7.35 mm (0.29 in.)
BODY

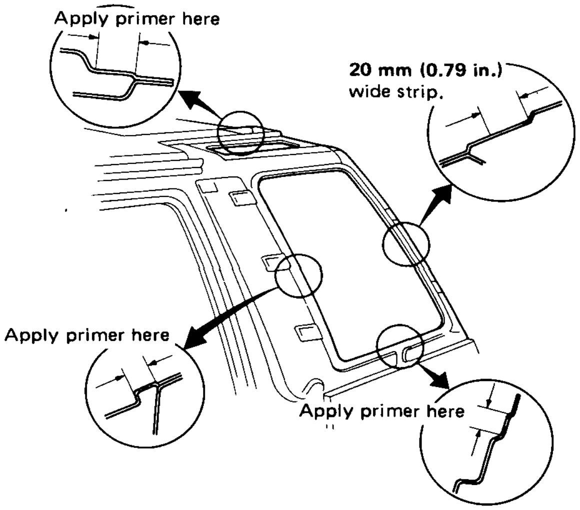
9. With a sponge, apply a light coat of body primer to the original adhesive remaining around the window opening flange. The glass should be installed 10 minutes after you apply the primer.

NOTE:
- Do not apply glass primer to the body, and be careful not to mix up glass and body primer sponges.
- Never touch the primed surfaces with your hands.

Coupe:

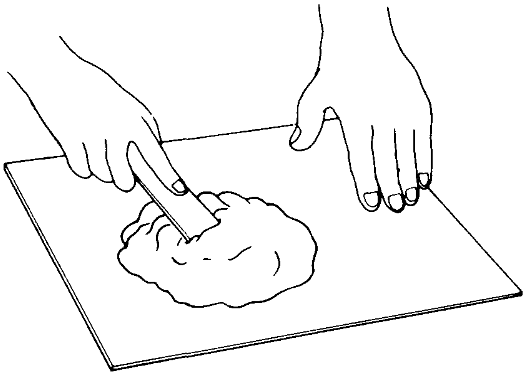

Apply primer here

4D H/B:

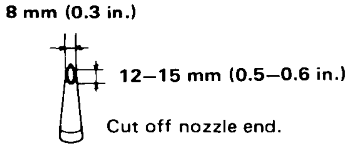

Apply primer here
20 mm (0.79 in.) wide strip.
Apply primer here
Apply primer here

10. Thoroughly mix all the adhesive and hardener together on a glass or metal plate with a putty knife.

NOTE:
- Clean the plate with a sponge and alcohol before mixing.
- Follow the instructions that come with the adhesive.



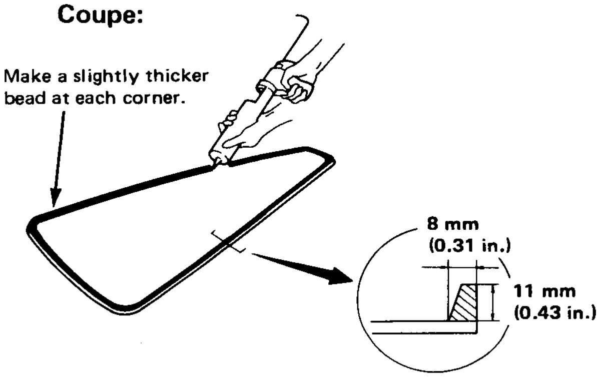
11. Before filling a cartridge, cut off the end of the nozzle at the angle shown.


8 mm (0.3 in.)
12–15 mm (0.5–0.6 in.)
Cut off nozzle end.

12. Pack adhesive into the cartridge without air pockets, to ensure continuous delivery. Put the cartridge in a caulking gun, and run a bead of adhesive around the edge of the glass as shown.

NOTE: Apply the adhesive within 30 minutes after applying the glass primer.

Coupe:

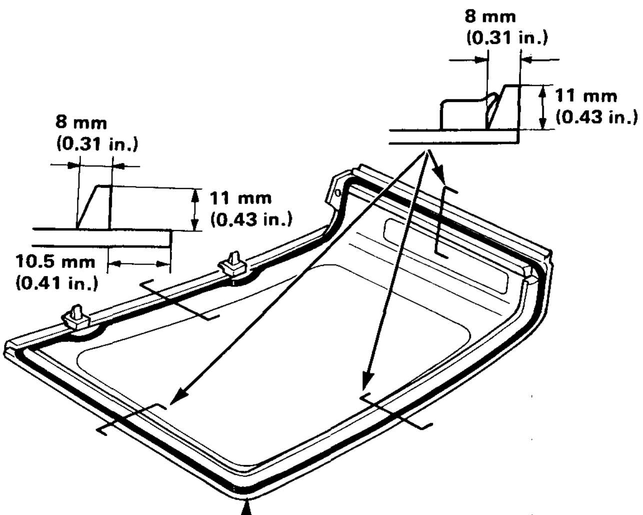

Make a slightly thicker bead at each corner.
8 mm (0.31 in.)
11 mm (0.43 in.)

(cont'd)

Quarter Glass (Coupe and 4D H/B)

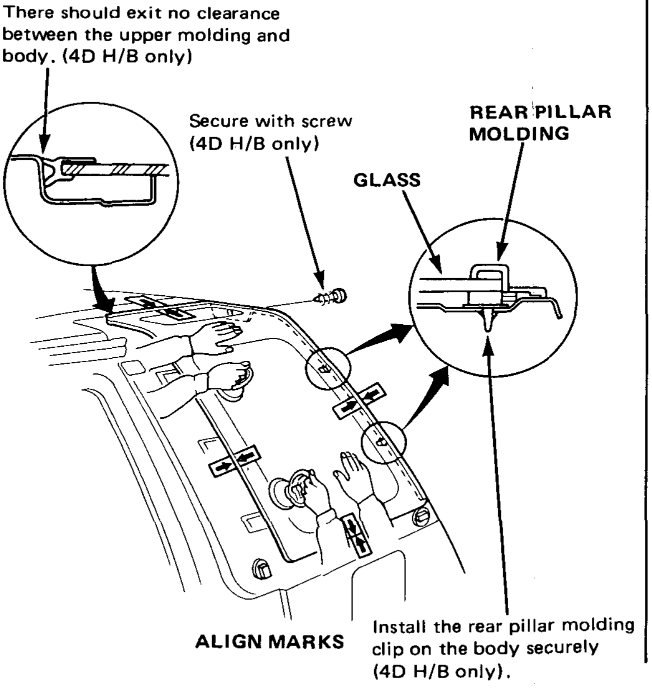
Installation (cont'd)

4D H/B:


8 mm
(0.31 in.)
11 mm
(0.43 in.)
8 mm
(0.31 in.)
11 mm
(0.43 in.)
10.5 mm
(0.41 in.)

Make a slightly thicker bead at each corner.

13. Use suction cups to hold the glass over the opening, align it with the marks made in step 4 and set it down on the adhesive. Lightly push on the glass until its edge is fully seated on the adhesive all the way around.


There should exit no clearance between the upper molding and body. (4D H/B only)

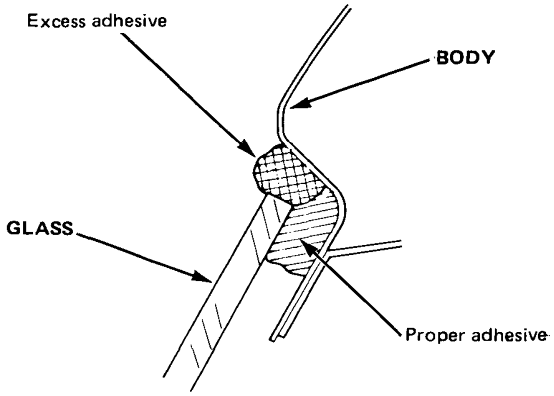
Secure with screw (4D H/B only)

Install the rear pillar molding clip on the body securely (4D H/B only).

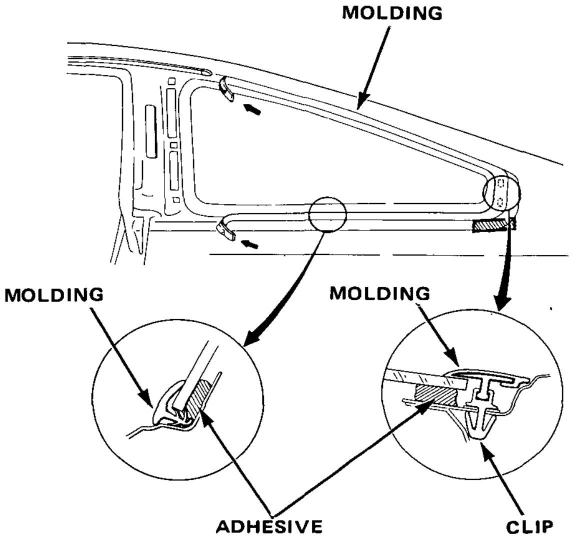
REAR PILLAR MOLDING
GLASS
ALIGN MARKS

14. Scrape or wipe the excess adhesive off with a putty knife or gauze.

    NOTE: Wipe with a soft rag or towel dampened with unleaded gasoline to remove adhesive from a painted surface or glass.


Excess adhesive
BODY
GLASS
Proper adhesive

15. Install the clips on the molding, then install the molding. Be sure that adhesive fully contacts the attaching surface by checking the molding at points 100 mm (3.9 in.) apart all the way around. (Coupe only)


MOLDING
MOLDING
MOLDING
ADHESIVE
CLIP

NOTE: Wipe excess adhesive off with a soft rag or towel dampened with unleaded gasoline.

16. Let the molding air dry for about 5 minutes. Check that there are no gaps between the molding and the glass or frame body all the way around. Seal any gaps in accordance with the instructions described in page 22-40. (for Coupe only)

17. Secure the glass by installing the:
    Coupe: Glass holder (see page 22-52).
    4D H/B: Brackets (see page 22-52).

    NOTE: On Coupe, check that the ends of the molding are secured under the glass holder.

18. Spray water on the quarter glass 1–2 hours after installing the glass. Mark any leaks and let the windshield dry, then seal leaking area with sealant.

    NOTE:
    - Do not squirt water on freshly applied adhesive.
    - Drive the car slowly if it must be driven during the first 4 hours after the quarter glass has been *installed.*

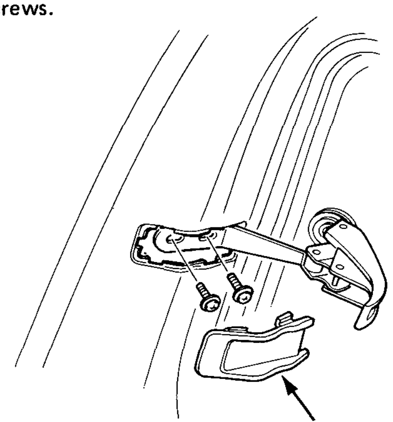
19. On the 4D H/B, attach the 3 clips to the lower molding then push if into the clip holes in the body and attach the pillar molding over it. On the Coupe, attach the pillar molding onto the glass holder (see pages 22-52 and 53).

CAUTION: Do not drive the car on rough or uneven surfaces for at least 4 hours.

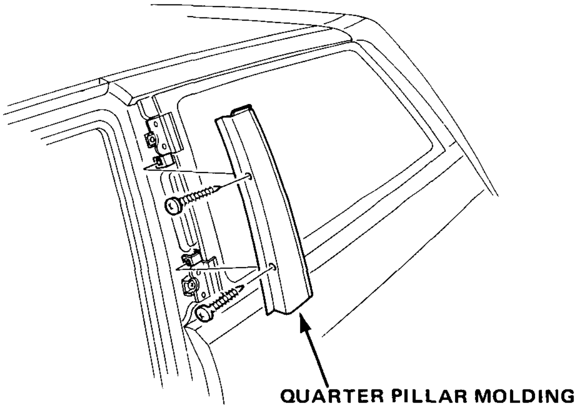
Quarter Glass (2D H/B)

Replacement

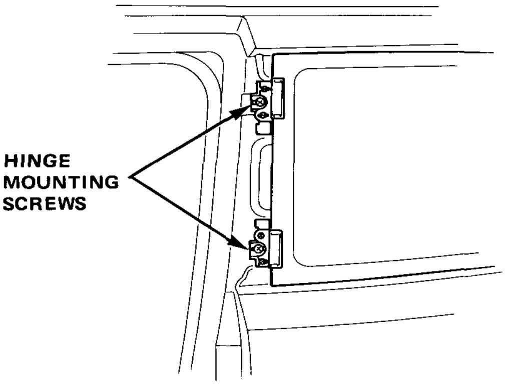
1. Pry the latch mount cover out and then remove the screws.



2. Remove the screws and the quarter pillar molding.



3. Remove the quarter glass hinge mounting screws, and then the glass.

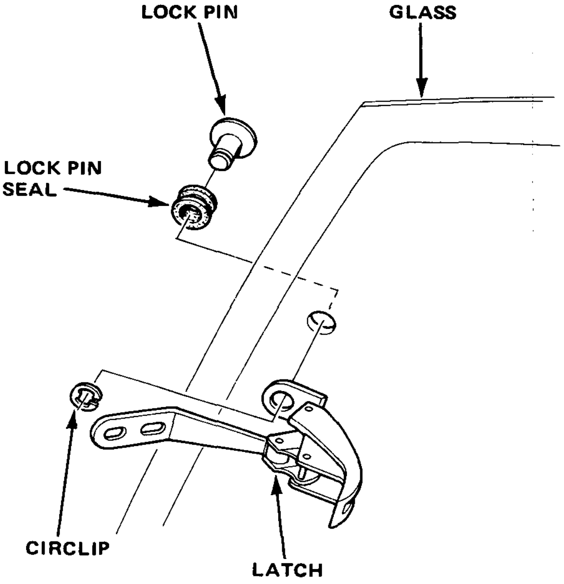


(cont'd)

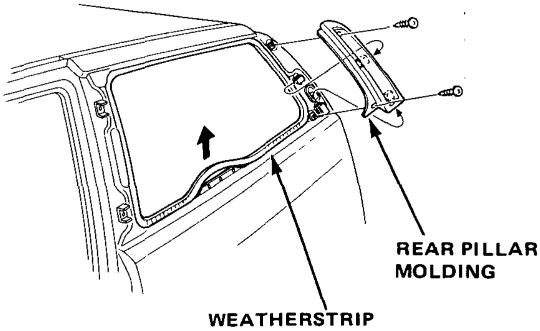
Quarter Glass (2D H/B)

Replacement (cont'd)

4. Remove the circlip with a screwdriver, then remove the latch.

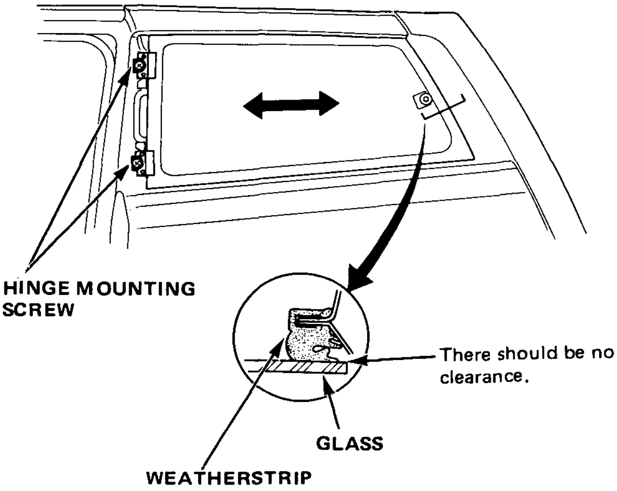

LOCK PIN
GLASS
LOCK PIN SEAL
CIRCLIP
LATCH

5. If necessary, pull off the weatherstrip and remove the rear pillar molding.


REAR PILLAR MOLDING
WEATHERSTRIP

6. Install in the reverse of removal. Check for proper glass fit when closed after installation.

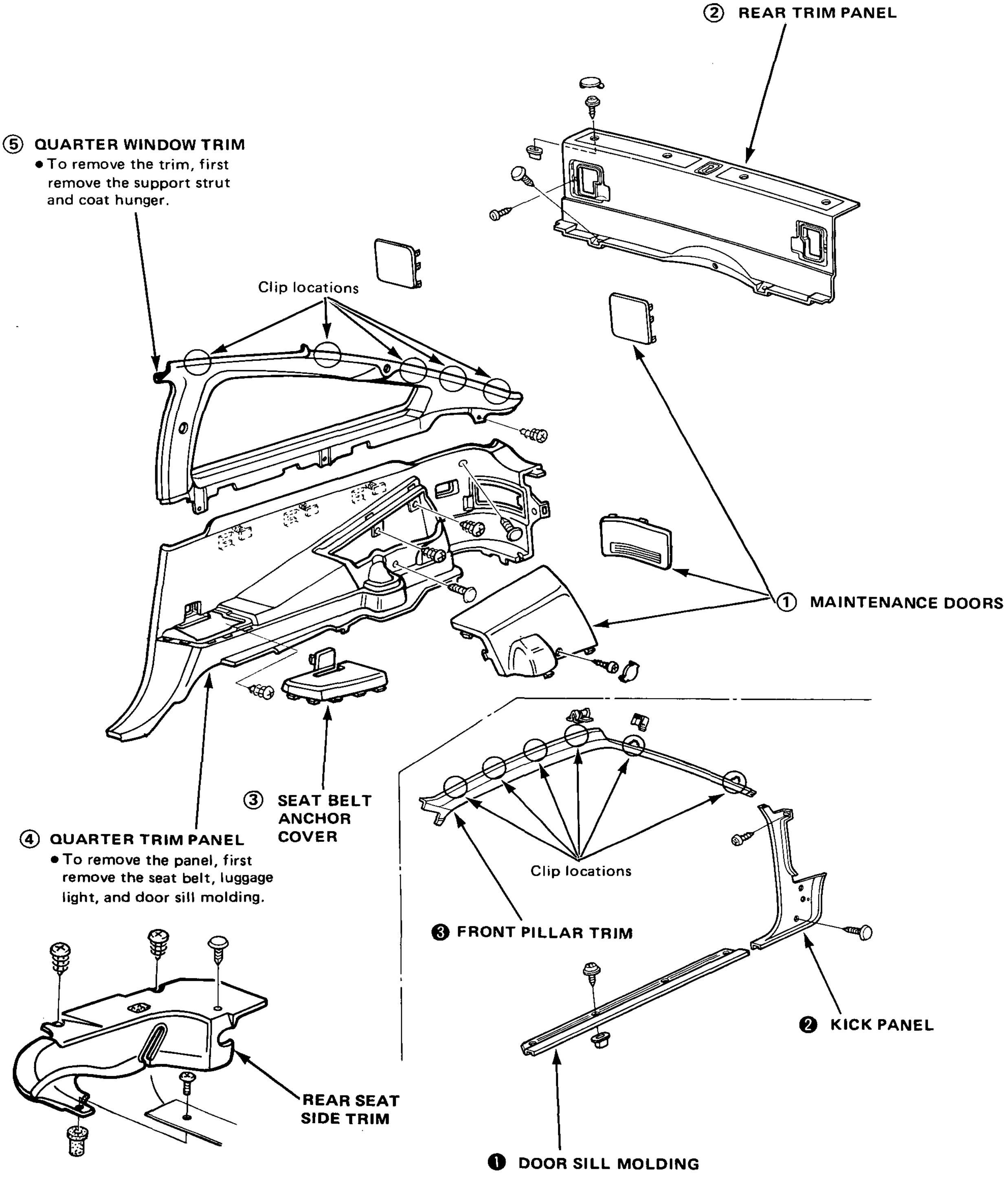
7. To adjust, remove the quarter pillar molding, lossen the quarter glass hinge mount screw and move the glass back and forth. Adjust so that the latch works smoothly, and the glass closes securely.
   Check for proper contact between the glass and weatherstrip at the rear edge.


HINGE MOUNTING SCREW
There should be no clearance.
GLASS
WEATHERSTRIP

Interior Trim

Replacement (Coupe)

Disassemble in numbered sequence.


② REAR TRIM PANEL
⑤ QUARTER WINDOW TRIM
Clip locations
① MAINTENANCE DOORS
③ SEAT BELT ANCHOR COVER
④ QUARTER TRIM PANEL
Clip locations
➌ FRONT PILLAR TRIM
➋ KICK PANEL
REAR SEAT SIDE TRIM
➊ DOOR SILL MOLDING

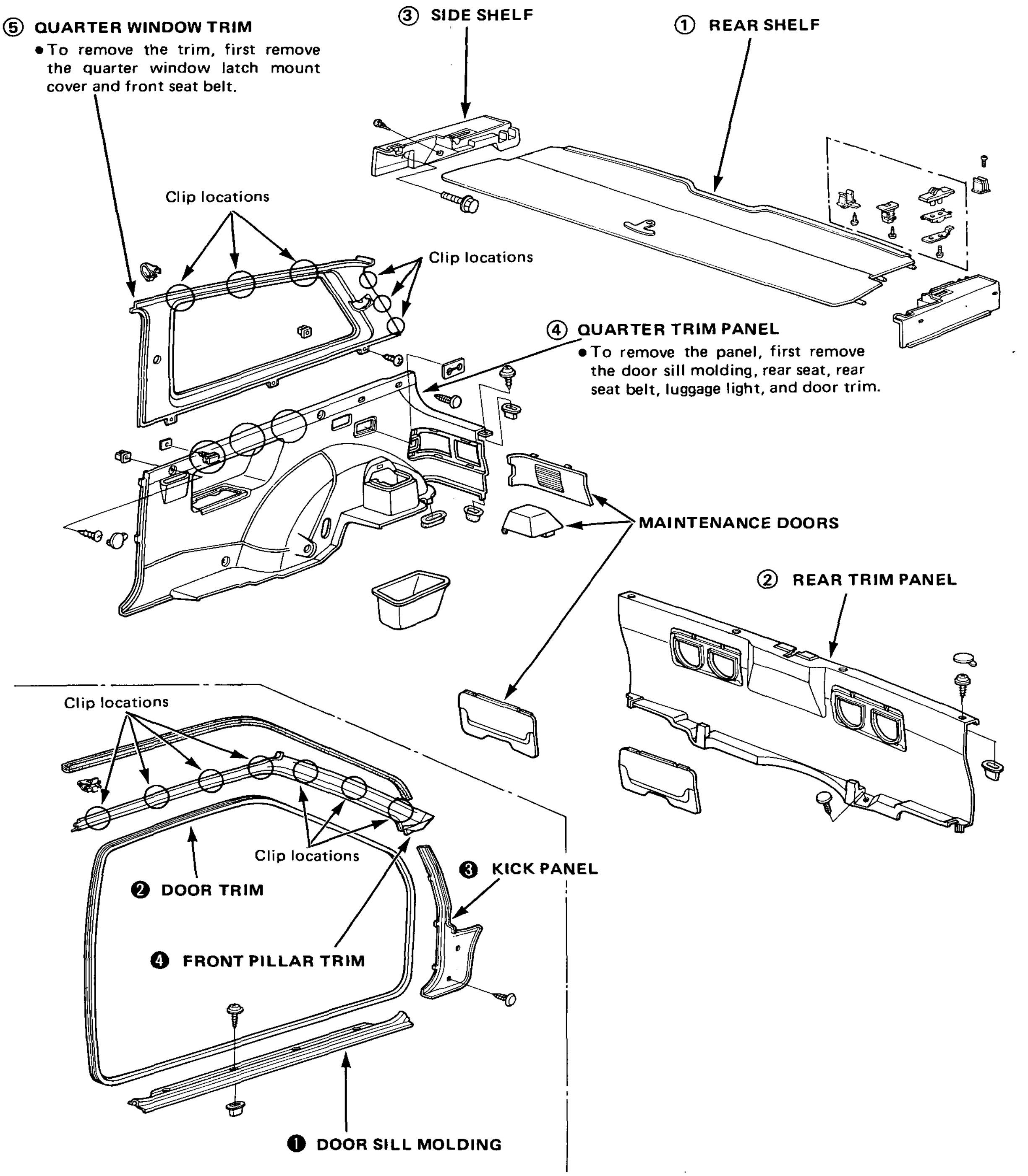
- To remove the trim, first remove the support strut and coat hunger.

- To remove the panel, first remove the seat belt, luggage light, and door sill molding.

Interior Trim

Replacement (2D H/B)

Disassemble in numbered sequence.


⑤ QUARTER WINDOW TRIM
③ SIDE SHELF
① REAR SHELF
Clip locations
Clip locations
④ QUARTER TRIM PANEL
MAINTENANCE DOORS
② REAR TRIM PANEL
Clip locations
Clip locations
❷ DOOR TRIM
❸ KICK PANEL
❹ FRONT PILLAR TRIM
❶ DOOR SILL MOLDING

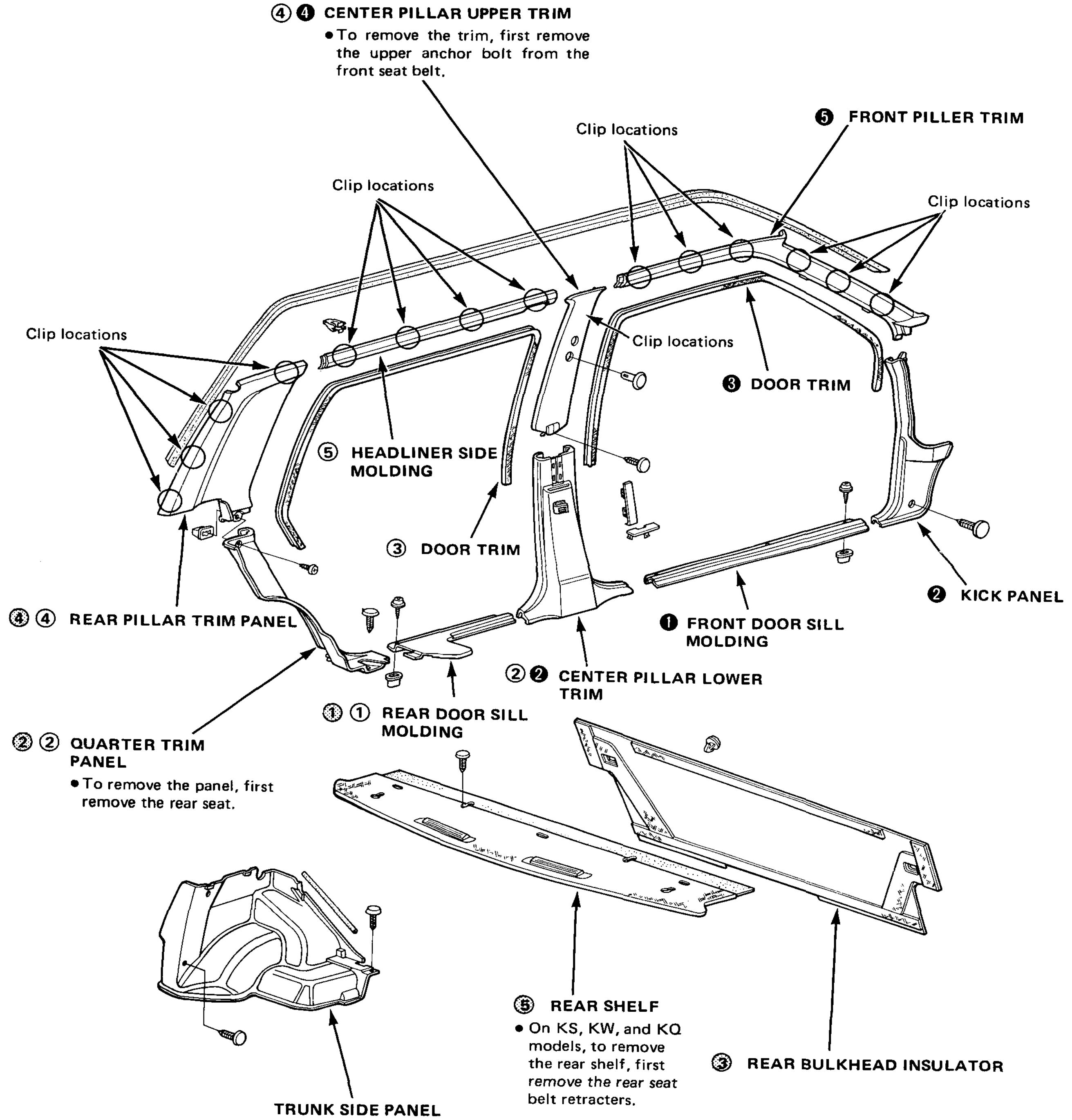
⑤ QUARTER WINDOW TRIM

- To remove the trim, first remove the quarter window latch mount cover and front seat belt.

④ QUARTER TRIM PANEL

- To remove the panel, first remove the door sill molding, rear seat, rear seat belt, luggage light, and door trim.

Disassemble in numbered sequence.


④ ❹ CENTER PILLAR UPPER TRIM
Clip locations
❺ FRONT PILLER TRIM
Clip locations
Clip locations
Clip locations
Clip locations
❸ DOOR TRIM
⑤ HEADLINER SIDE MOLDING
③ DOOR TRIM
❷ KICK PANEL
④ ④ REAR PILLAR TRIM PANEL
❶ FRONT DOOR SILL MOLDING
② ❷ CENTER PILLAR LOWER TRIM
① ① REAR DOOR SILL MOLDING
② ② QUARTER TRIM PANEL
⑤ REAR SHELF
③ REAR BULKHEAD INSULATOR
TRUNK SIDE PANEL

④ ❹ CENTER PILLAR UPPER TRIM
- To remove the trim, first remove the upper anchor bolt from the front seat belt.

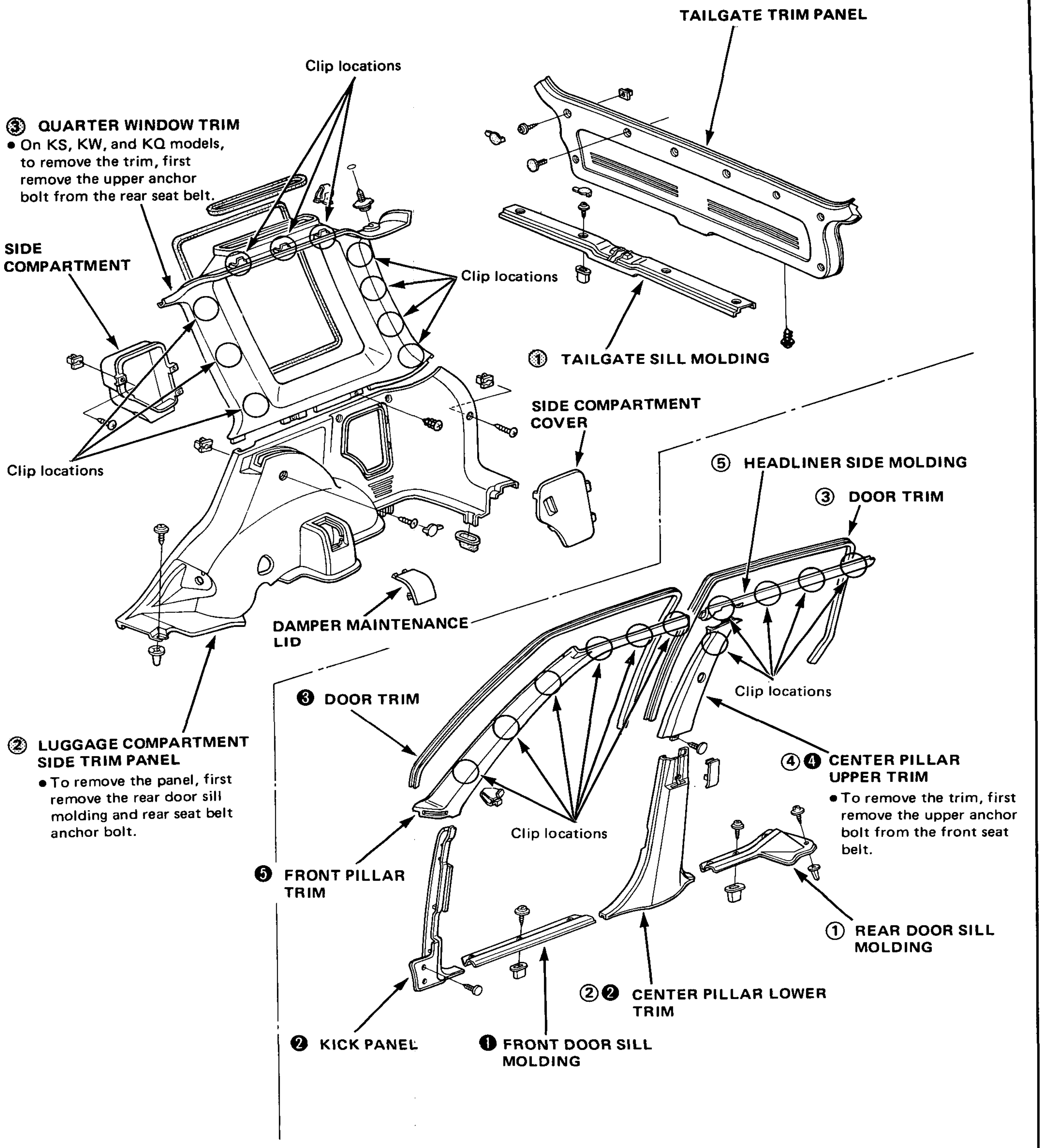
② ② QUARTER TRIM PANEL
- To remove the panel, first remove the rear seat.

⑤ REAR SHELF
- On KS, KW, and KQ models, to remove the rear shelf, first remove the rear seat belt retracters.

Interior Trim

Replacement (4D H/B)

Disassemble in numbered sequence.


TAILGATE TRIM PANEL
Clip locations
③ QUARTER WINDOW TRIM
SIDE COMPARTMENT
Clip locations
Clip locations
① TAILGATE SILL MOLDING
SIDE COMPARTMENT COVER
⑤ HEADLINER SIDE MOLDING
③ DOOR TRIM
DAMPER MAINTENANCE LID
❸ DOOR TRIM
Clip locations
② LUGGAGE COMPARTMENT SIDE TRIM PANEL
④❹ CENTER PILLAR UPPER TRIM
Clip locations
❺ FRONT PILLAR TRIM
① REAR DOOR SILL MOLDING
②❷ CENTER PILLAR LOWER TRIM
❷ KICK PANEL
❶ FRONT DOOR SILL MOLDING

③ QUARTER WINDOW TRIM

- On KS, KW, and KQ models, to remove the trim, first remove the upper anchor bolt from the rear seat belt.

② LUGGAGE COMPARTMENT SIDE TRIM PANEL

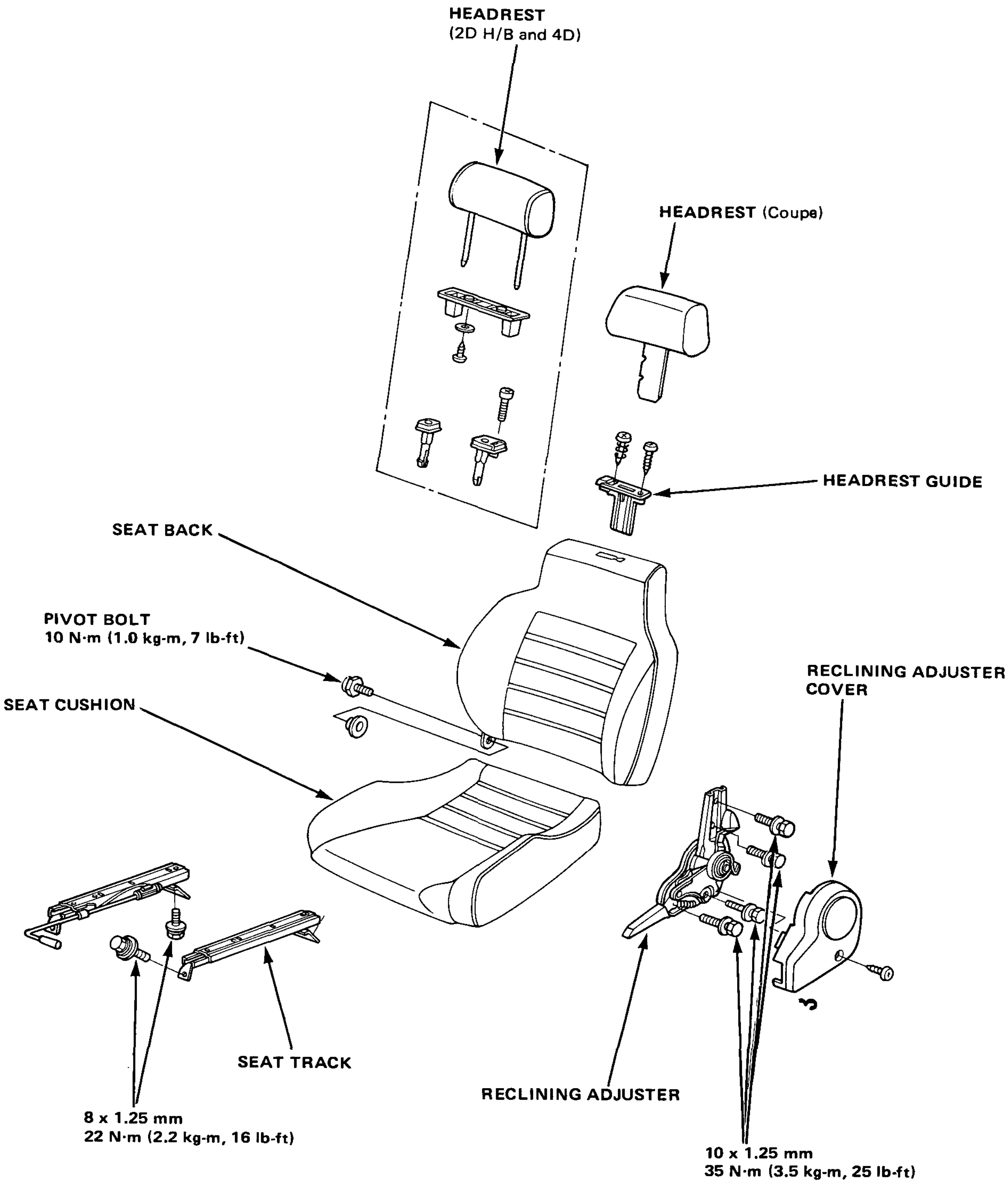
- To remove the panel, first remove the rear door sill molding and rear seat belt anchor bolt.

④❹ CENTER PILLAR UPPER TRIM

- To remove the trim, first remove the upper anchor bolt from the front seat belt.

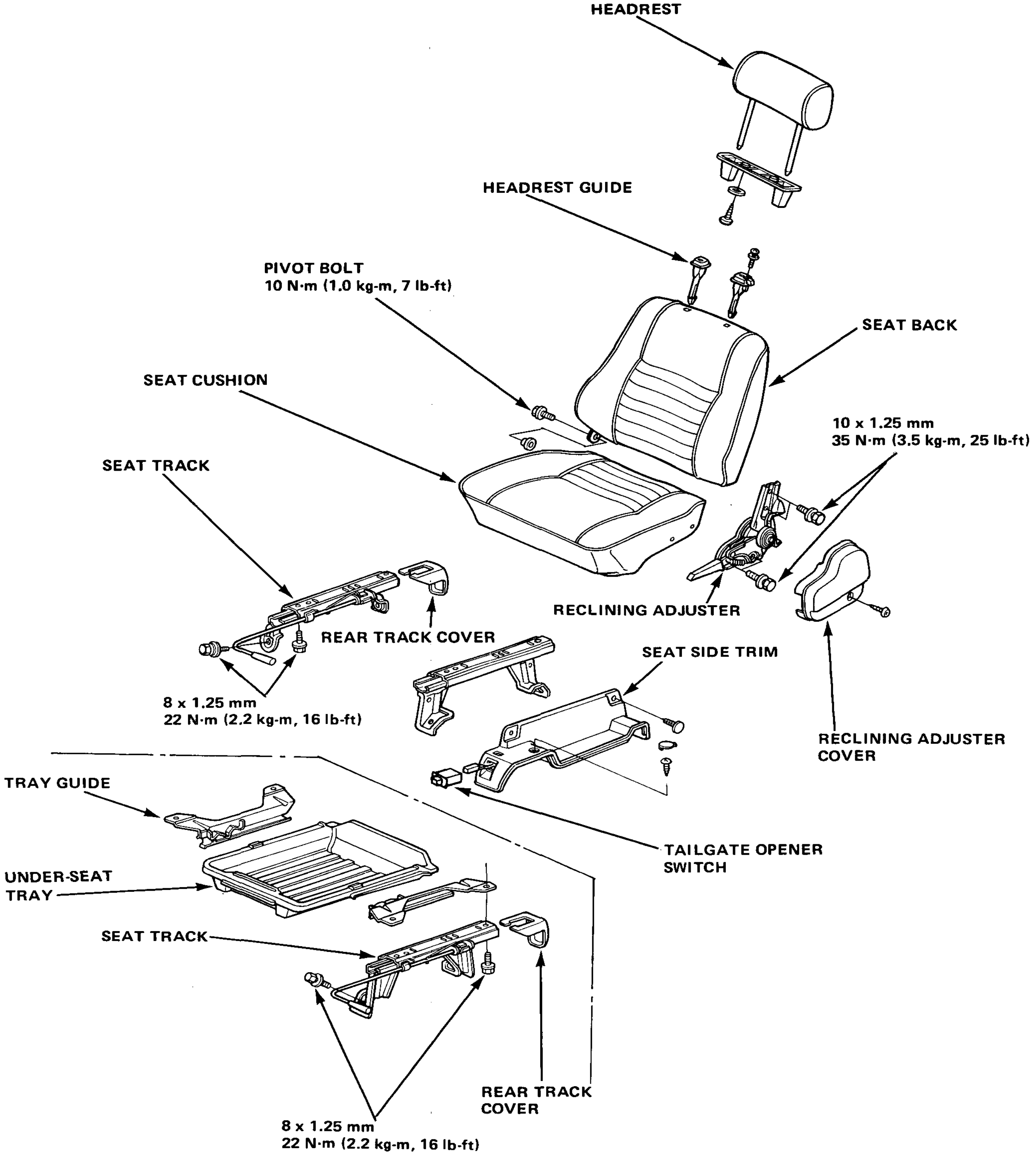
Front Seat

Replacement (Coupe, 2D H/B, and 4D)


HEADREST
(2D H/B and 4D)
HEADREST (Coupe)
HEADREST GUIDE
SEAT BACK
PIVOT BOLT
10 N·m (1.0 kg-m, 7 lb-ft)
SEAT CUSHION
RECLINING ADJUSTER COVER
SEAT TRACK
RECLINING ADJUSTER
8 x 1.25 mm
22 N·m (2.2 kg-m, 16 lb-ft)
10 x 1.25 mm
35 N·m (3.5 kg-m, 25 lb-ft)

Front Seat

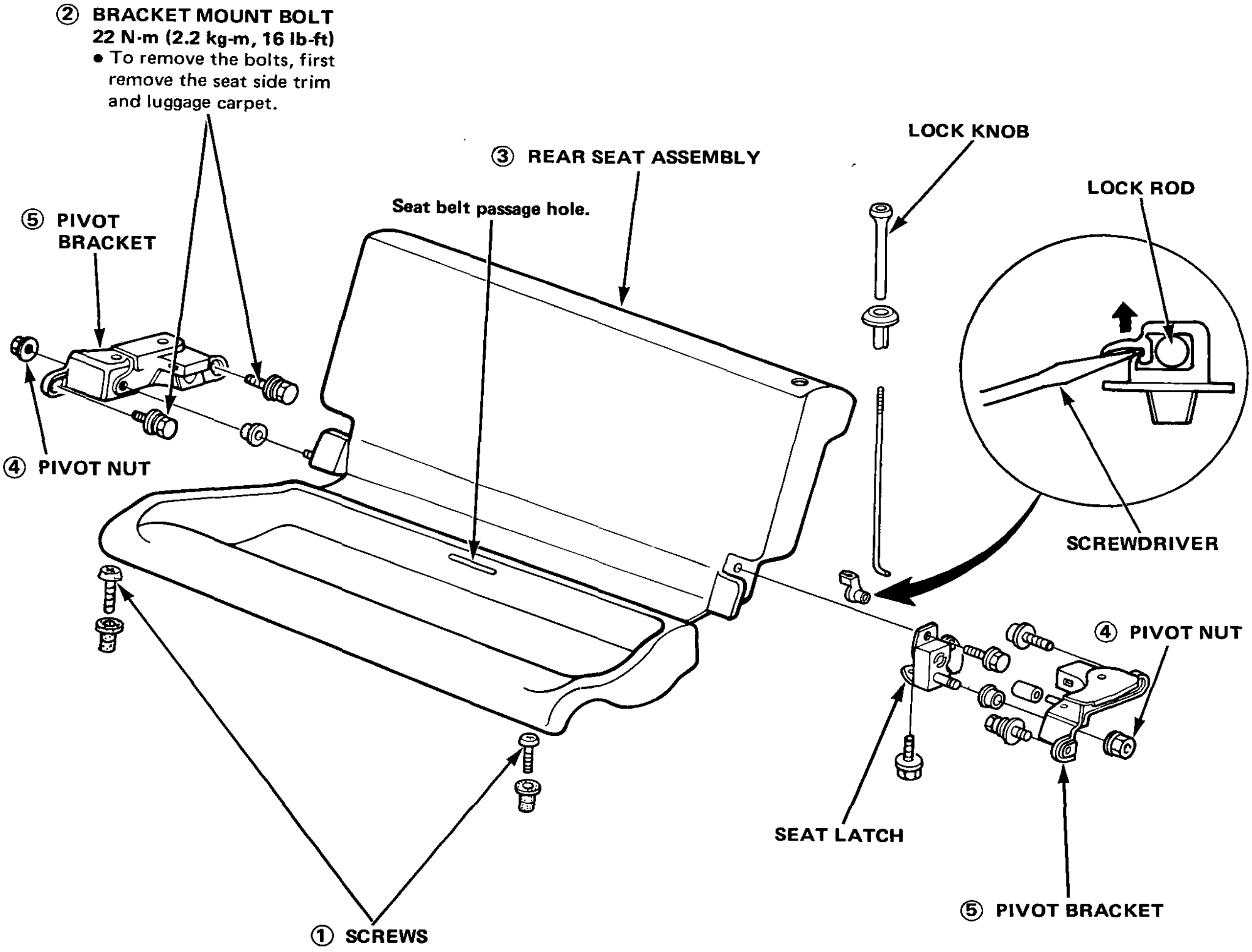
Replacement (4D H/B)


HEADREST
HEADREST GUIDE
PIVOT BOLT
10 N·m (1.0 kg-m, 7 lb-ft)
SEAT BACK
SEAT CUSHION
10 x 1.25 mm
35 N·m (3.5 kg-m, 25 lb-ft)
SEAT TRACK
RECLINING ADJUSTER
REAR TRACK COVER
SEAT SIDE TRIM
8 x 1.25 mm
22 N·m (2.2 kg-m, 16 lb-ft)
RECLINING ADJUSTER COVER
TRAY GUIDE
TAILGATE OPENER SWITCH
UNDER-SEAT TRAY
SEAT TRACK
REAR TRACK COVER
8 x 1.25 mm
22 N·m (2.2 kg-m, 16 lb-ft)

Rear Seat

Replacement (Coupe)

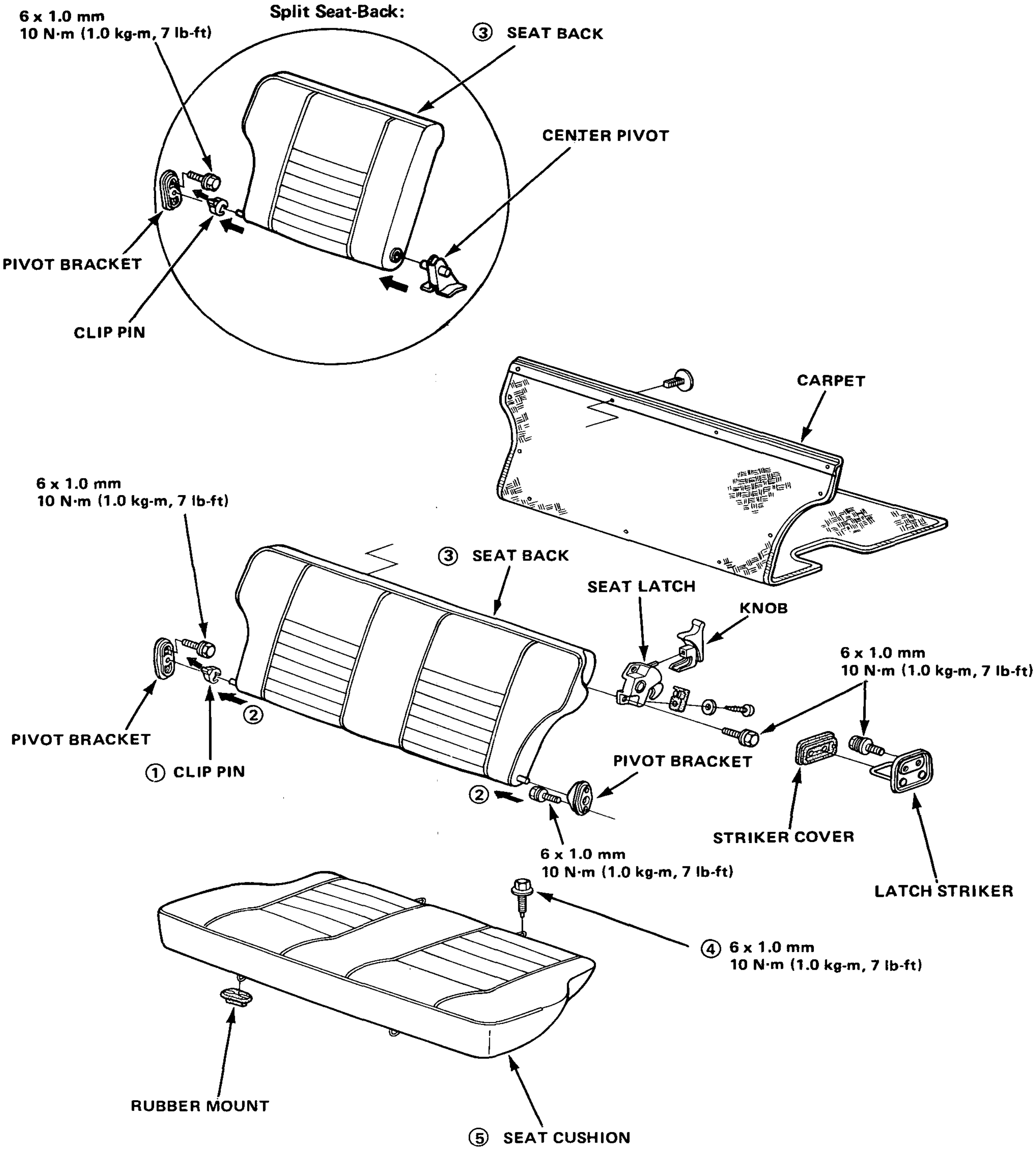
Disassemble in numbered sequence.


② BRACKET MOUNT BOLT
22 N·m (2.2 kg-m, 16 lb-ft)
• To remove the bolts, first remove the seat side trim and luggage carpet.
③ REAR SEAT ASSEMBLY
LOCK KNOB
LOCK ROD
Seat belt passage hole.
⑤ PIVOT BRACKET
④ PIVOT NUT
SCREWDRIVER
④ PIVOT NUT
SEAT LATCH
⑤ PIVOT BRACKET
① SCREWS

Rear Seat

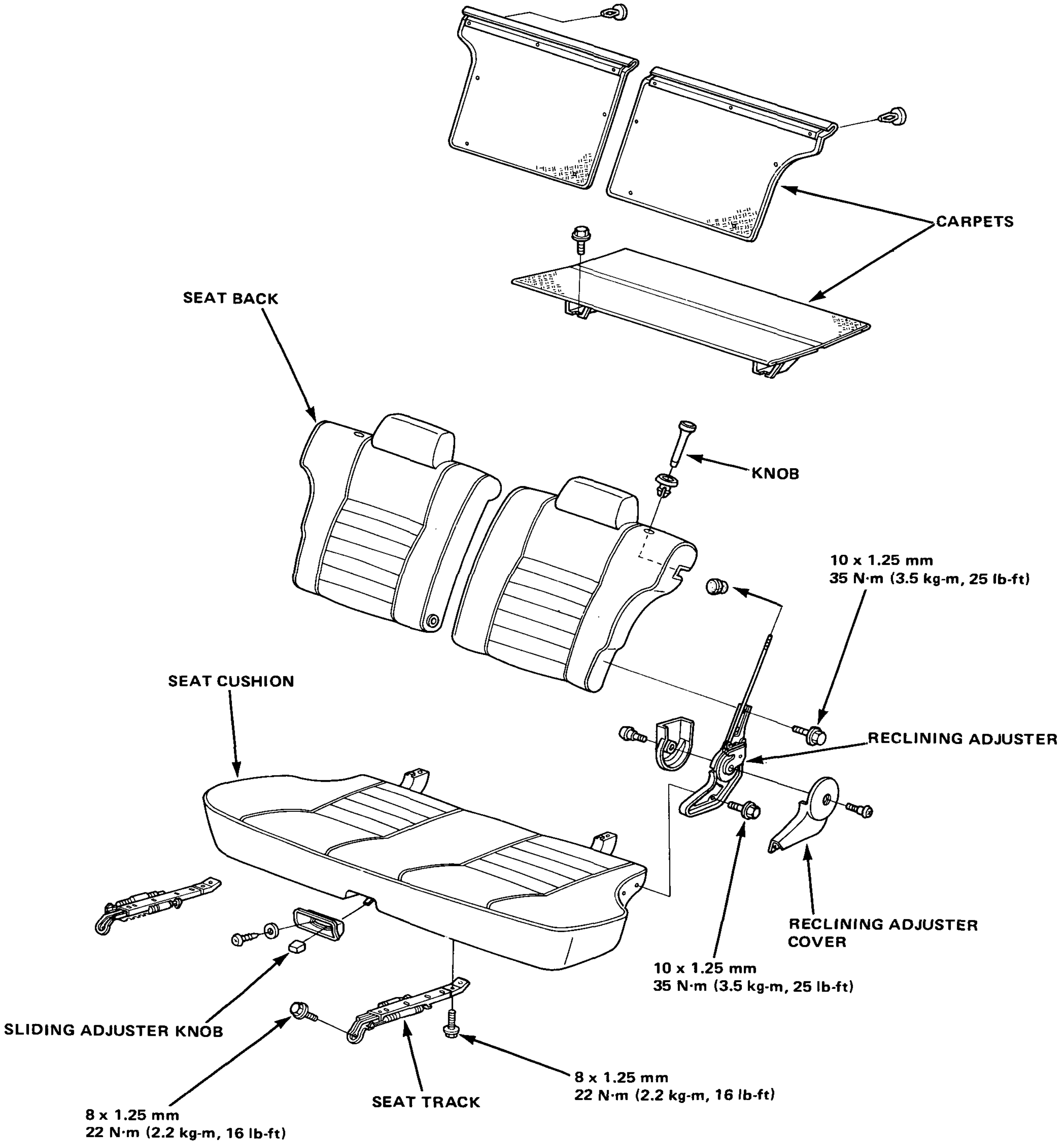
Replacement (2D H/B)

Disassemble in numbered sequence.



6 x 1.0 mm
10 N·m (1.0 kg-m, 7 lb-ft)
Split Seat-Back:
③ SEAT BACK
CENTER PIVOT
PIVOT BRACKET
CLIP PIN
CARPET
6 x 1.0 mm
10 N·m (1.0 kg-m, 7 lb-ft)
③ SEAT BACK
SEAT LATCH
KNOB
6 x 1.0 mm
10 N·m (1.0 kg-m, 7 lb-ft)
②
PIVOT BRACKET
① CLIP PIN
PIVOT BRACKET
②
STRIKER COVER
6 x 1.0 mm
10 N·m (1.0 kg-m, 7 lb-ft)
LATCH STRIKER
④ 6 x 1.0 mm
10 N·m (1.0 kg-m, 7 lb-ft)
RUBBER MOUNT
⑤ SEAT CUSHION

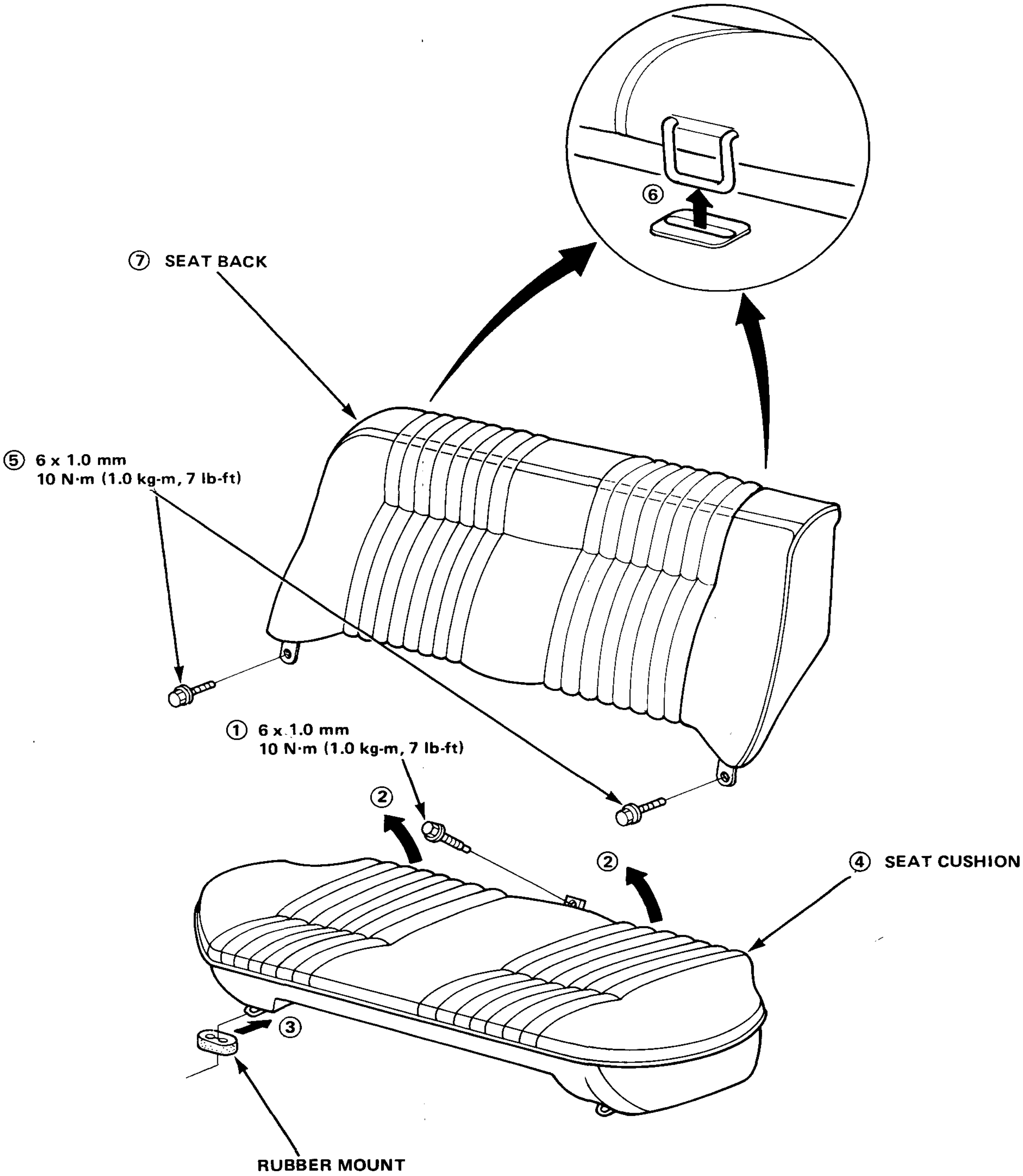
Pully-adjustable Rear Seat:


CARPETS
SEAT BACK
KNOB
10 x 1.25 mm
35 N·m (3.5 kg-m, 25 lb-ft)
RECLINING ADJUSTER
SEAT CUSHION
RECLINING ADJUSTER COVER
10 x 1.25 mm
35 N·m (3.5 kg-m, 25 lb-ft)
SLIDING ADJUSTER KNOB
8 x 1.25 mm
22 N·m (2.2 kg-m, 16 lb-ft)
SEAT TRACK
8 x 1.25 mm
22 N·m (2.2 kg-m, 16 lb-ft)

Rear Seat

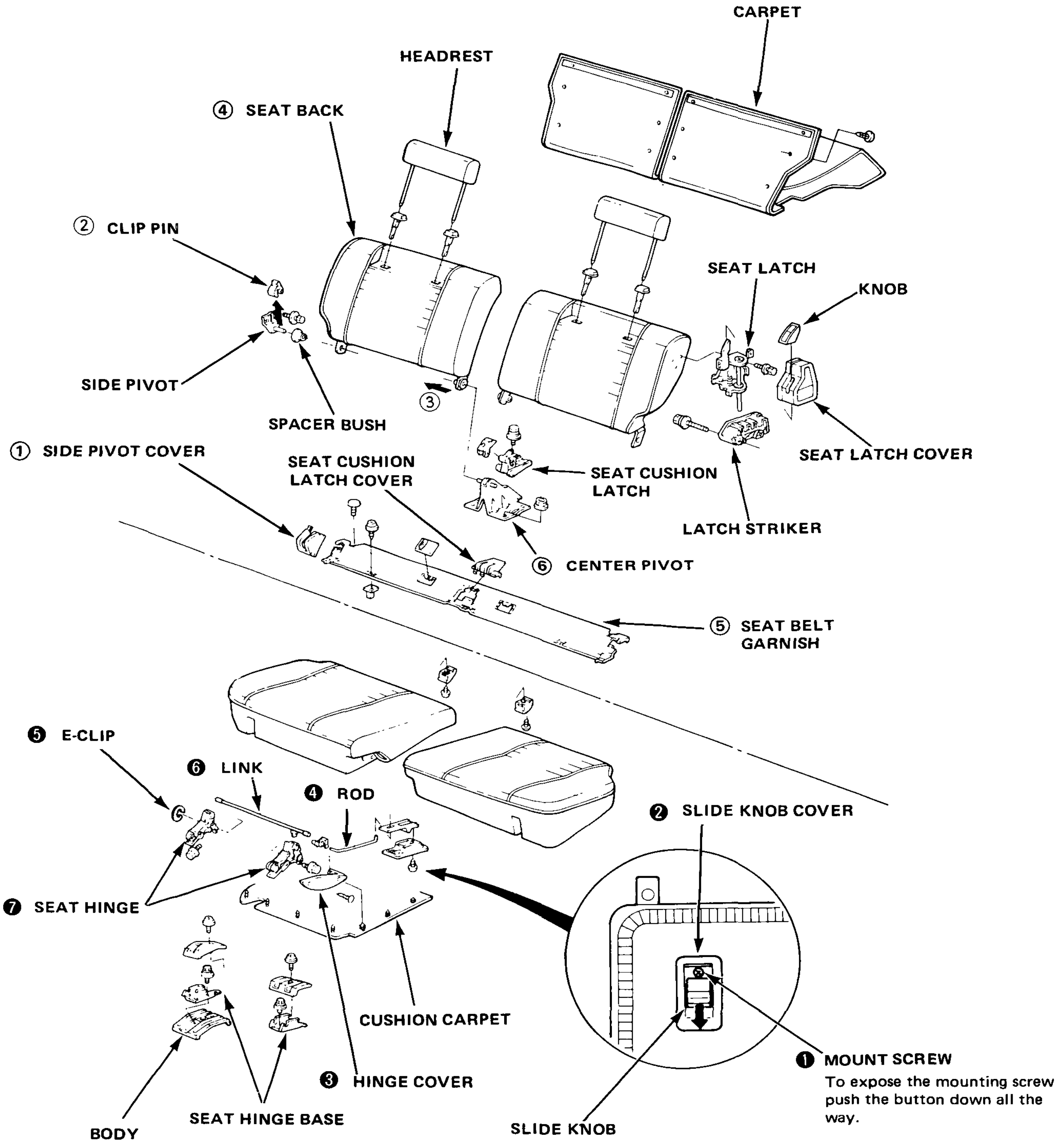
Replacement (4D)

Disassemble in numbered sequence.


⑥
⑦ SEAT BACK
⑤ 6 x 1.0 mm
10 N·m (1.0 kg-m, 7 lb-ft)
① 6 x 1.0 mm
10 N·m (1.0 kg-m, 7 lb-ft)
②
②
④ SEAT CUSHION
③
RUBBER MOUNT

– (4D H/B)

Disassemble in numbered sequence.


CARPET
HEADREST
④ SEAT BACK
② CLIP PIN
SEAT LATCH
KNOB
SIDE PIVOT
③
SPACER BUSH
① SIDE PIVOT COVER
SEAT CUSHION LATCH COVER
SEAT CUSHION LATCH
SEAT LATCH COVER
LATCH STRIKER
⑥ CENTER PIVOT
⑤ SEAT BELT GARNISH
❺ E-CLIP
❻ LINK
❹ ROD
❷ SLIDE KNOB COVER
❼ SEAT HINGE
CUSHION CARPET
❶ MOUNT SCREW
❸ HINGE COVER
BODY
SEAT HINGE BASE
SLIDE KNOB

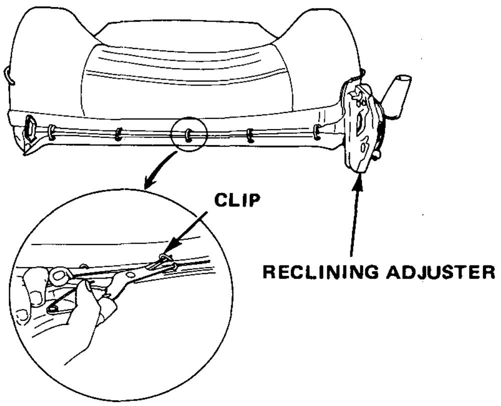
To expose the mounting screw push the button down all the way.

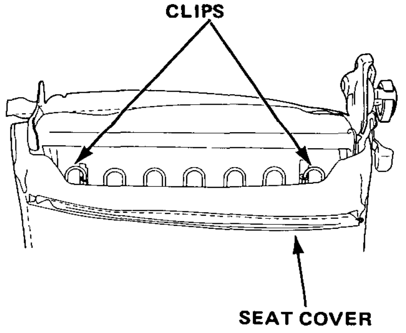
Seat Cover

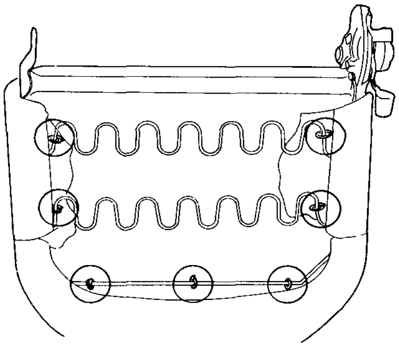
Replacement

1. Separate the seat cushion and back.
2. Remove all clips on the rear of the seat, and separate the cover from the seat.

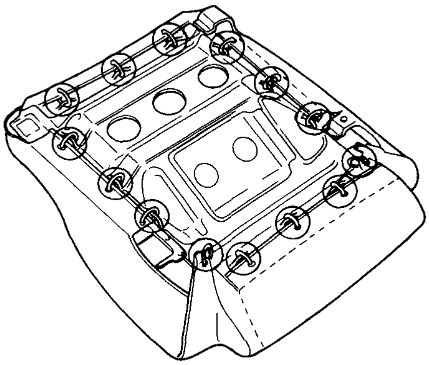
Front Seat Back:

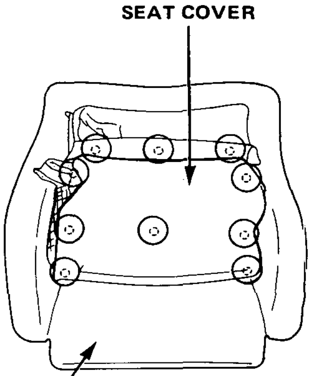

CLIP
RECLINING ADJUSTER


CLIPS
SEAT COVER



Front Seat Cushion:





The front of the seat cushion.

3. Remove the rear seat cover by same method.

NOTE: To prevent wrinkles when installing a seat cover, make sure the material is stretched evenly over the frame before securing all the clips.

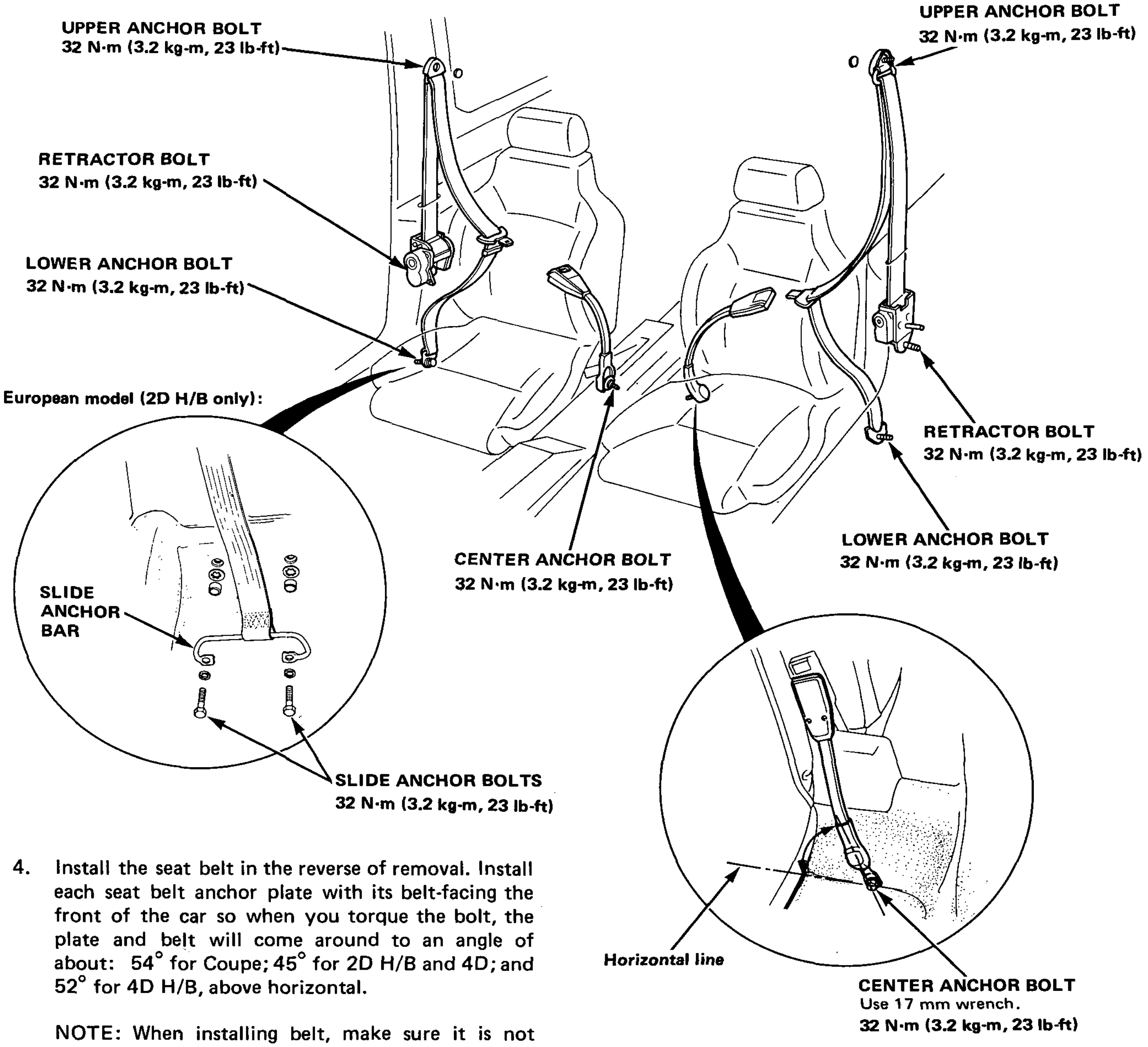
Front Seat Belts

Replacement

CAUTION: Check the seat belts for damage (see page 22-76), and replace them if necessary. Be careful not to damage them during removal and installation.

1. Remove the quarter trim panel (for Coupe and 2D H/B), or the center pillar lower trim (for 4D and 4D H/B).
2. Remove the upper anchor bolt, lower anchor bolt and retractor bolt with a 17 mm socket or box-end wrench.

   NOTE: Exercise utmost care to remove the anchor bolt together with collar, washer, etc.
3. Slide the front seat foward until the seat belt center anchor bolt is accessible, then remove the bolt and the center anchor.


UPPER ANCHOR BOLT
32 N·m (3.2 kg-m, 23 lb-ft)
RETRACTOR BOLT
32 N·m (3.2 kg-m, 23 lb-ft)
LOWER ANCHOR BOLT
32 N·m (3.2 kg-m, 23 lb-ft)
European model (2D H/B only):
SLIDE ANCHOR BAR
SLIDE ANCHOR BOLTS
32 N·m (3.2 kg-m, 23 lb-ft)
UPPER ANCHOR BOLT
32 N·m (3.2 kg-m, 23 lb-ft)
RETRACTOR BOLT
32 N·m (3.2 kg-m, 23 lb-ft)
LOWER ANCHOR BOLT
32 N·m (3.2 kg-m, 23 lb-ft)
CENTER ANCHOR BOLT
32 N·m (3.2 kg-m, 23 lb-ft)
Horizontal line
CENTER ANCHOR BOLT
Use 17 mm wrench.
32 N·m (3.2 kg-m, 23 lb-ft)

4. Install the seat belt in the reverse of removal. Install each seat belt anchor plate with its belt-facing the front of the car so when you torque the bolt, the plate and belt will come around to an angle of about: 54° for Coupe; 45° for 2D H/B and 4D; and 52° for 4D H/B, above horizontal.

   NOTE: When installing belt, make sure it is not *twisted behind the seat.*

Rear Seat Belts

Replacement

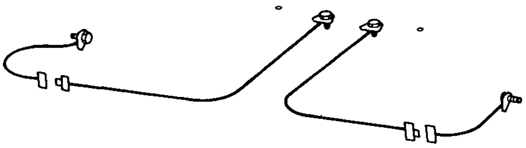
CAUTION: Check the seat belts for damage (see page 22-76), and replace them if necessary. Be careful not to damage them during removal and installation.

1. To remove the rear seat belt, first remove the:
   - Rear seat (page 22-67 to 71).
   - Quarter trim panel (2D H/B: 3-point retractable type only) (page 22-62).
   - Luggage compartment side trim panel (4D H/B: 3-point retractable type only) (page 22-64).
   - Seat belt garnish (4D H/B only) (page 22-71).
2. Remove each anchor bolts and retractor bolts with a 17 mm socket or box-end wrench.

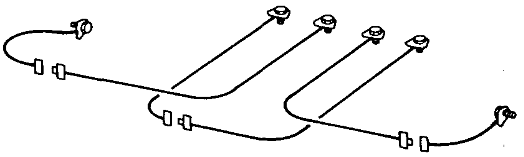
   NOTE: Exercise utmost care to remove the anchor bolt together with collar, washer, etc.
3. Install the seat belt in the reverse order of removal.

Coupe, 2D H/B, and 4D:

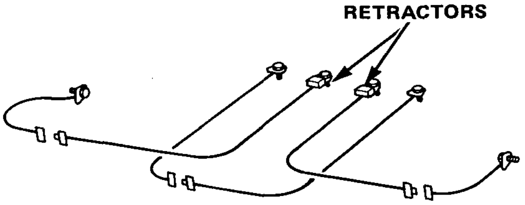
Two-point manual type (2 men)



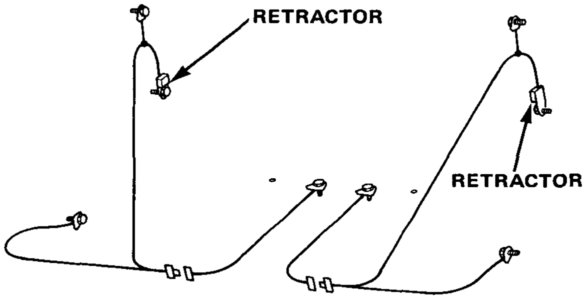
Two-point manual type (3 men)



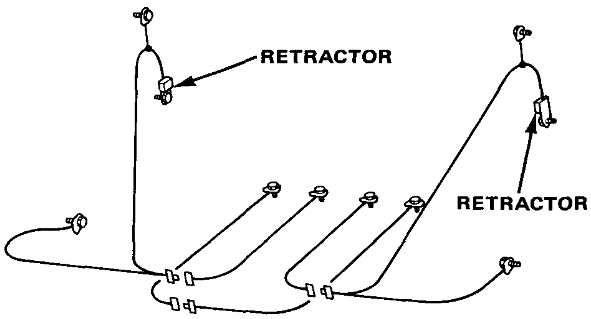
Two-point retractable type (3 men)



Three-point retractable type (2 men)

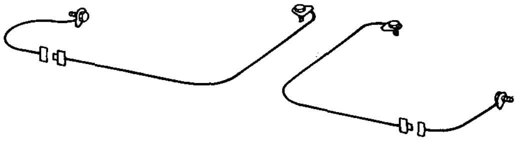


Three-point retractable type (3 men)

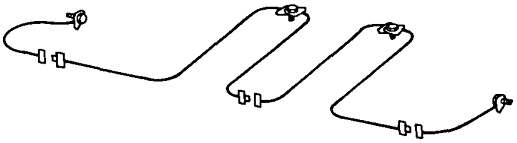


4D H/B:

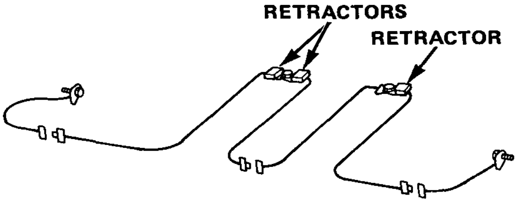
Two-point manual type (2 men)



Two-point manual type (3 men)

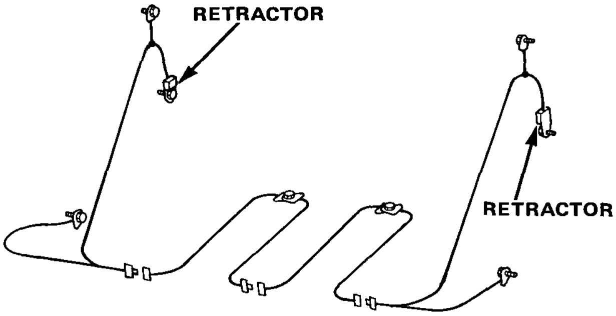


Two-point retractable type (3 men)



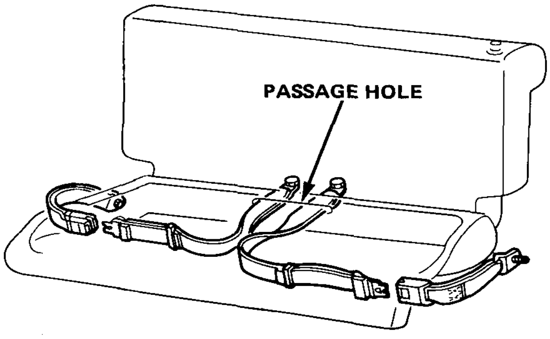
RETRACTORS
RETRACTOR

Three-point retractable type (3 men)



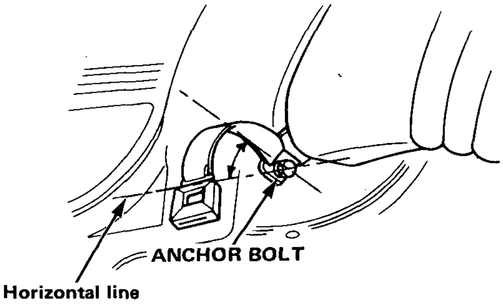
RETRACTOR
RETRACTOR

Each seat belt anchor bolt
Tightening torque: 32 N·m (3.2 kg-m, 23 lb-ft)



PASSAGE HOLE

4. Pass the seat belts through the:
   - Passage hole of the seat cushion (For Coupe and 2D H/B-adjustable seat only).
   - Passage hole of the seat belt garnish (For 4D H/B).
5. Install each seat belt anchor plate with its belt facing the front of the car so when you torque the bolt, the plate and belt will come around to an angle of about: 48° for Coupe; 45° for 2D H/B and 4D, above horizontal, for 4D H/B, insert the anchor plate's pin into the body hole.
6. When installing belt, make sure it is not twisted behind the seat.



ANCHOR BOLT
Horizontal line

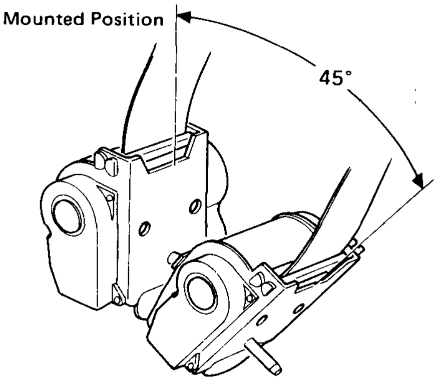
Seat Belts

Inspection

Retractor Inspection

1. With the retractor installed, check that the belt can be pulled out freely.
2. Make sure that the belt does not lock when the retractor is leaned slowly up to 15° from the mounted position. The belt should lock when the retractor is leaned over 45°.

CAUTION: Do not attempt to disassemble the retractor.



3. Replace the belt with a new one if there is any abnormality.

On the Car-Belt Inspection

1. Check that the belt is not twisted or caught on anything.
2. After installing the anchors, check for free movement on its retaining bolt. If necessary, remove the bolt and check that the washers and other parts are not damaged or are installed properly.
3. Check the belts for fouling, damage or discoloration. Clean with a shop towel if fouled.
4. Check that the belt is not locked when pulled out slowly. The belt is designed to lock only during a sudden stop or impact (Except Canadian model).
5. Make sure that the belt will retract automatically when released.
6. Replace the belt with a new one if there is any abnormality.

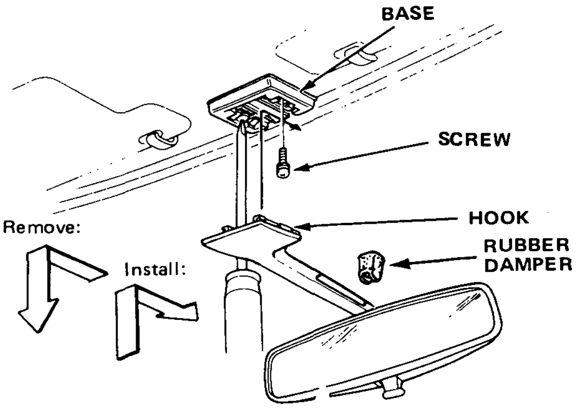
Rear View Mirror

Replacement

1. Remove the rubber damper.
2. Slide the mirror back to remove it.

CAUTION: Do not use a hammer or excessive force to free the mirror from the base, plastic tabs in the base are designed to break away under sudden impact.

3. Unscrew the two screws and then remove the mirror base.



4. Install the mirror base, with the cutout toward the windshield.
5. Install the mirror by inserting its hooks in the base and sliding the mirror forward to lock it in place.

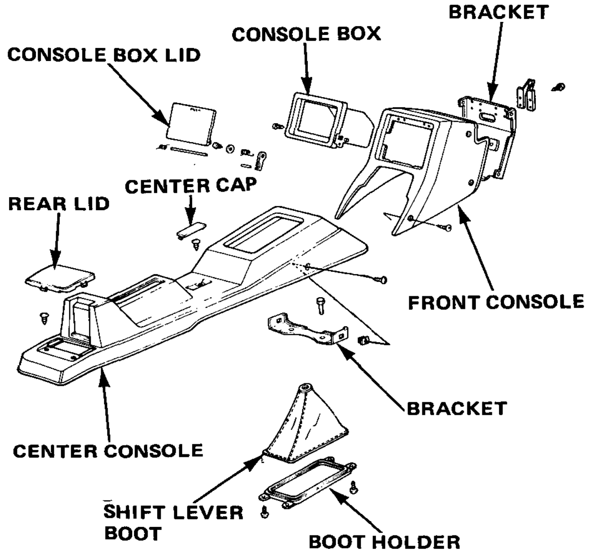
CAUTION: Installation is in the reverse order of removal, but take care that the tip of the mirror hook is not pushed beyond the front edge of the base. If this happens the mirror base will break.

Console

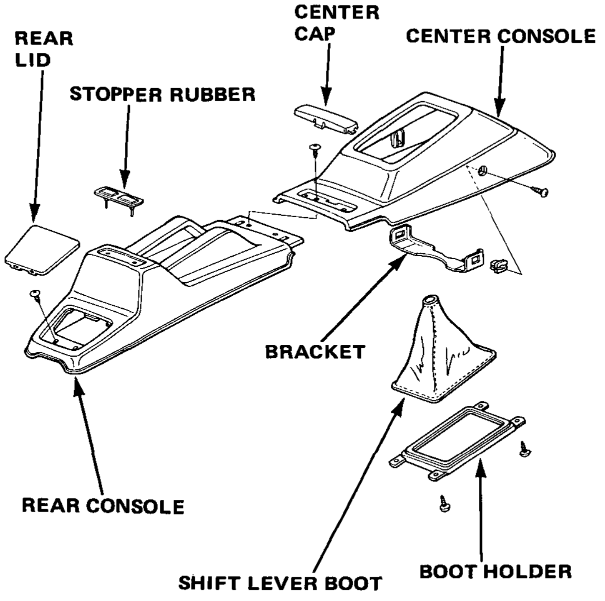
Replacement

1. Remove the gear shift knob (5-speed) or selector lever handle (automatic).
2. On console box equiped model, remove the mounting screws to release the front console.
3. Remove the center cap and rear lid for the center and rear console, and remove its mounting screws to release the center and rear console.

Coupe, 2D H/B, and 4D:


BRACKET
CONSOLE BOX
CONSOLE BOX LID
REAR LID
CENTER CAP
FRONT CONSOLE
BRACKET
CENTER CONSOLE
SHIFT LEVER BOOT
BOOT HOLDER

4D H/B:

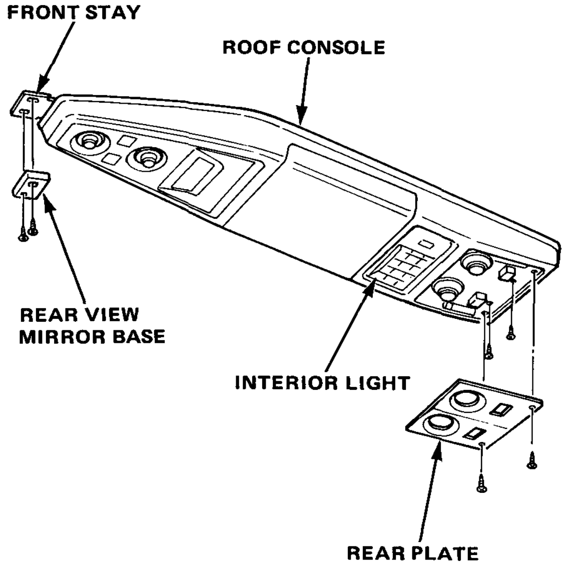

CENTER CAP
REAR LID
CENTER CONSOLE
STOPPER RUBBER
BRACKET
REAR CONSOLE
SHIFT LEVER BOOT
BOOT HOLDER

Roof Console

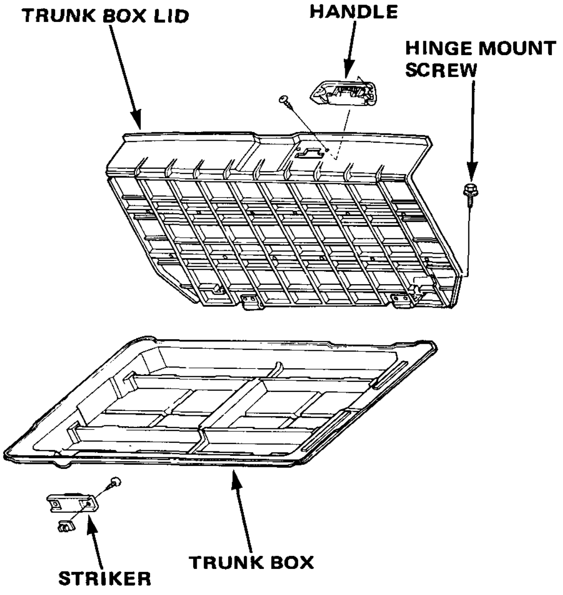
Trunk Box

Roof Console Replacement

To remove the roof console, first remove the interior light and the rear view mirror.


FRONT STAY
ROOF CONSOLE
REAR VIEW MIRROR BASE
INTERIOR LIGHT
REAR PLATE

Trunk Box Replacement (4D H/B)


TRUNK BOX LID
HANDLE
HINGE MOUNT SCREW
STRIKER
TRUNK BOX

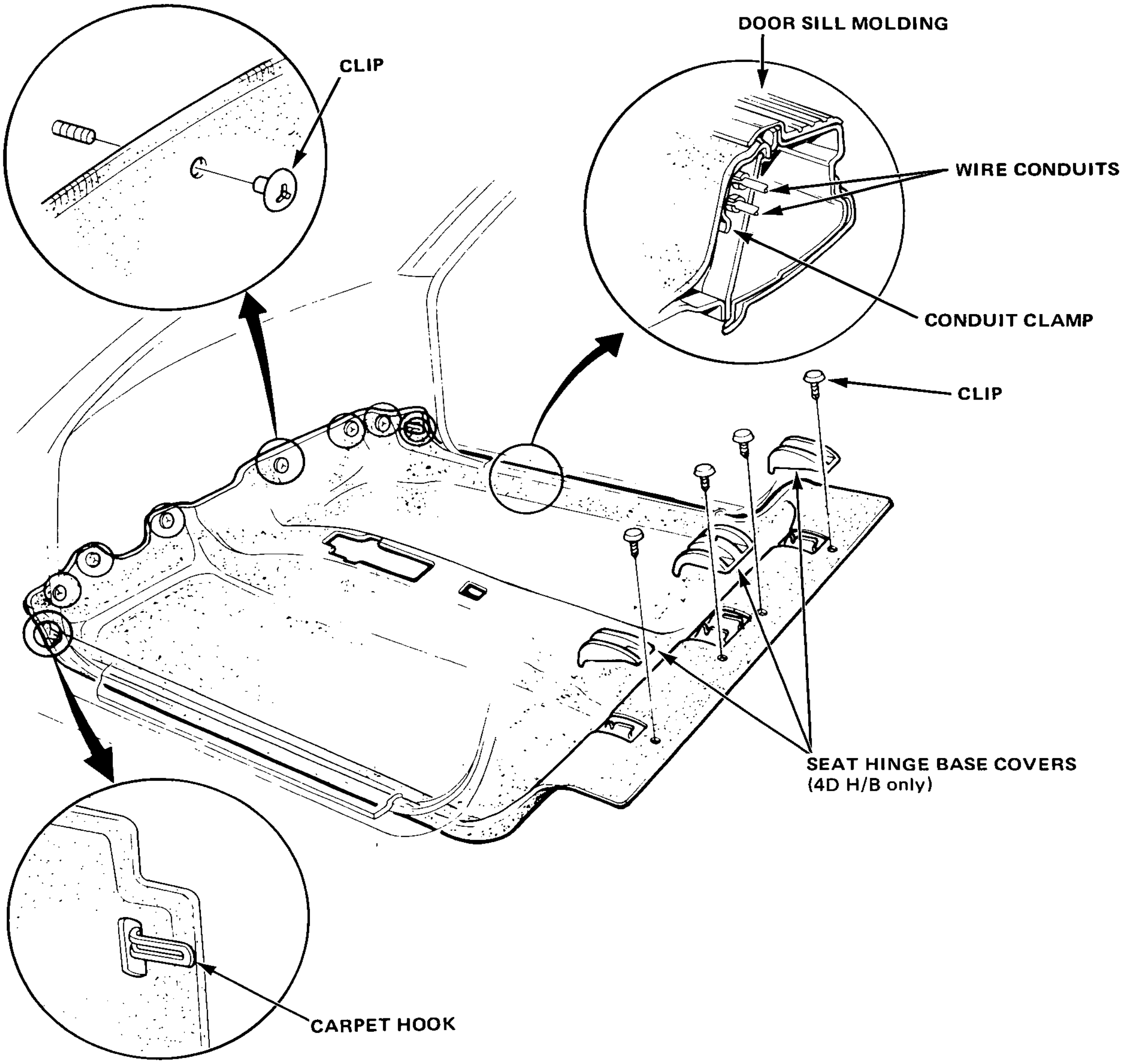
Carpet

Replacement

1. Remove:

- Front seats.
- Rear seat cushion.
- Center console.
- Right and left kick panels.
- Door sill moldings.
- Trunk lid opener.
- Right and left quarter trim panels (Coupe and 4D H/B)
- Front seat belt floor anchor bolts.
- PGM-FI control unit (Coupe only).
- Right and left center pillar lower trims (4D and 4D H/B).
- Seat hinge base covers (4D H/B only).

2. Pry out the clips at the rear edge and under the dashboard, and remove the carpet.


CLIP
DOOR SILL MOLDING
WIRE CONDUITS
CONDUIT CLAMP
CLIP
SEAT HINGE BASE COVERS (4D H/B only)
CARPET HOOK

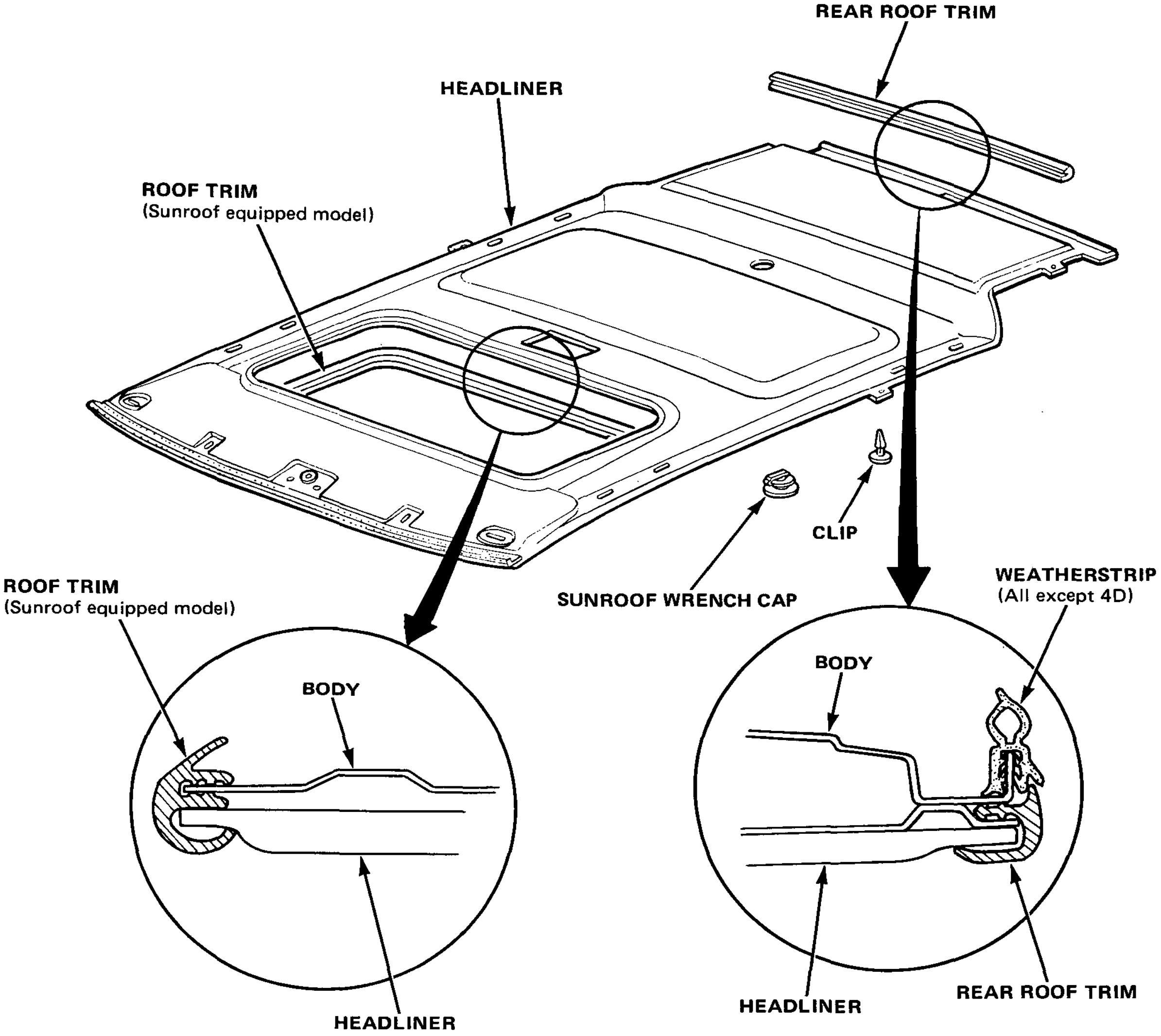
Headliner

Replacement

1. Remove:

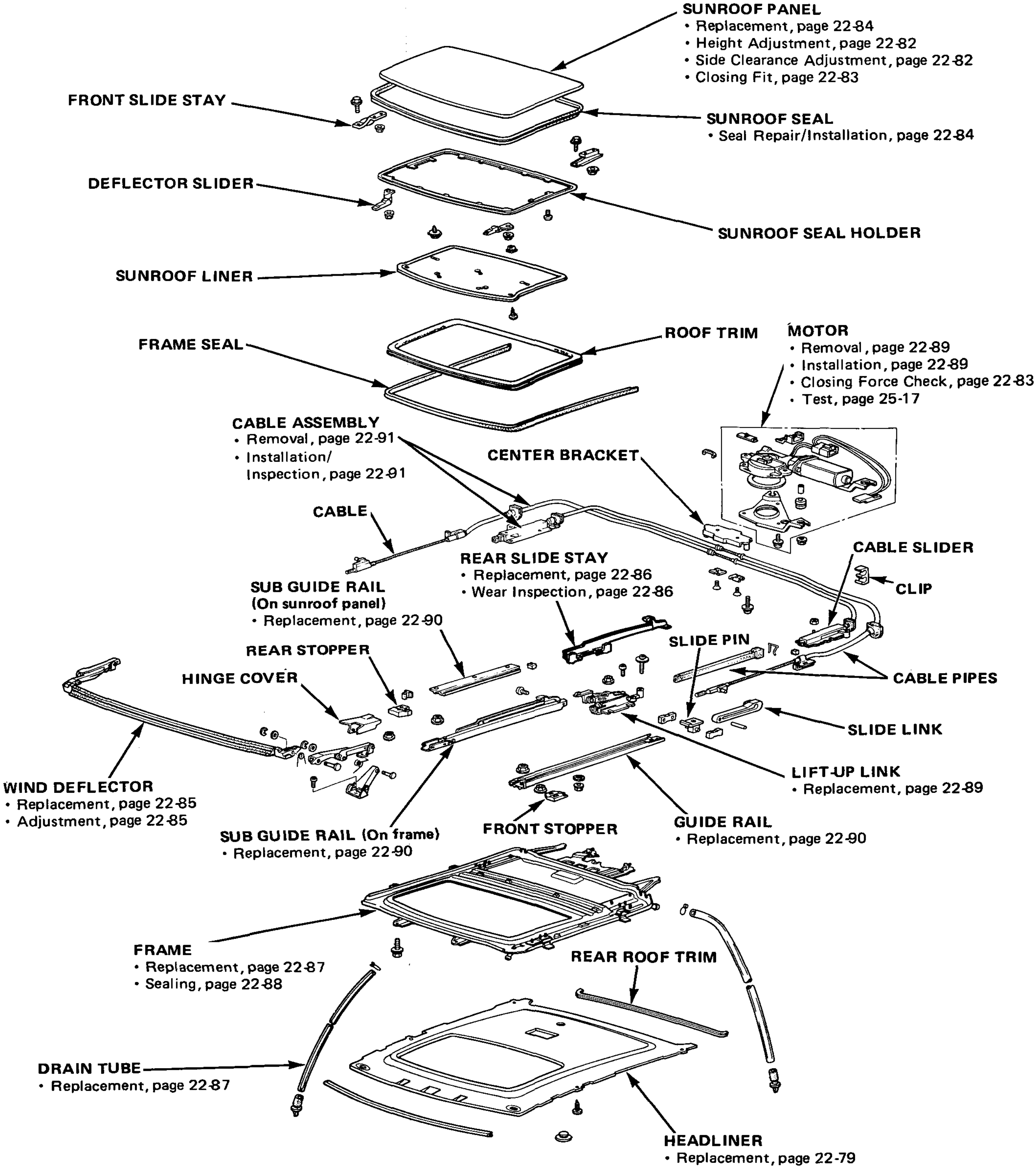
   - Sunvisors.
   - Rear view mirror and base.
   - Front pillar trims.
   - Interior light.
   - Quarter window trim (except 4D).
   - Luggage light.
   - Headliner side molding (4D and 4D H/B).
   - Rear roof trim.
   - Grab handle.
   - Roof console (equipped model).
   - Roof trim (Sunroof equipped model).

2. Remove the rear roof trim and the clips, then remove the headliner.


REAR ROOF TRIM
HEADLINER
ROOF TRIM
(Sunroof equipped model)
CLIP
SUNROOF WRENCH CAP
WEATHERSTRIP
(All except 4D)
ROOF TRIM
(Sunroof equipped model)
BODY
HEADLINER
BODY
HEADLINER
REAR ROOF TRIM

Sunroof (Coupe)

Index



SUNROOF PANEL
• Replacement, page 22-84
• Height Adjustment, page 22-82
• Side Clearance Adjustment, page 22-82
• Closing Fit, page 22-83
FRONT SLIDE STAY
SUNROOF SEAL
• Seal Repair/Installation, page 22-84
DEFLECTOR SLIDER
SUNROOF SEAL HOLDER
SUNROOF LINER
FRAME SEAL
ROOF TRIM
MOTOR
• Removal, page 22-89
• Installation, page 22-89
• Closing Force Check, page 22-83
• Test, page 25-17
CABLE ASSEMBLY
• Removal, page 22-91
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CENTER BRACKET
CABLE
REAR SLIDE STAY
• Replacement, page 22-86
• Wear Inspection, page 22-86
CABLE SLIDER
CLIP
SUB GUIDE RAIL (On sunroof panel)
• Replacement, page 22-90
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SLIDE PIN
HINGE COVER
CABLE PIPES
SLIDE LINK
LIFT-UP LINK
• Replacement, page 22-89
WIND DEFLECTOR
• Replacement, page 22-85
• Adjustment, page 22-85
SUB GUIDE RAIL (On frame)
• Replacement, page 22-90
FRONT STOPPER
GUIDE RAIL
• Replacement, page 22-90
FRAME
• Replacement, page 22-87
• Sealing, page 22-88
REAR ROOF TRIM
DRAIN TUBE
• Replacement, page 22-87
HEADLINER
• Replacement, page 22-79

Troubleshooting

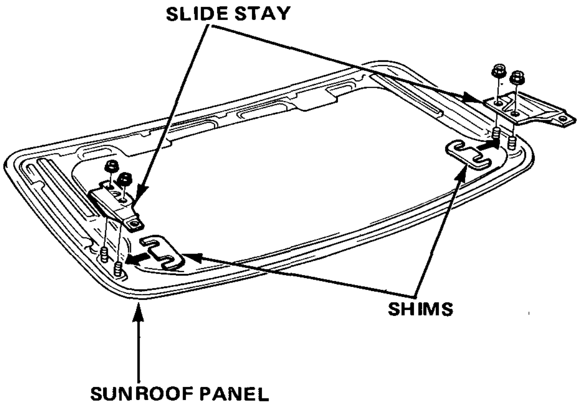
Symptom	Probable Causes
Water leak	1. Improperly installed sunroof seal and sunroof panel (page 22-84). 2. Gap between sunroof seal and roof panel (page 22-82). 3. Clogged drain tube. 4. Gap between frame seal and frame. 5. Improper sealing between cable pipe and frame (page 22-88). 6. Improper sealing between guide rail and frame (page 22-88).
Wind noise	1. Improper clearance between sunroof seal and roof panel (page 22-82). 2. Loose headliner and roof trim.
Deflector noise	1. Improper clearance between deflector blade and roof panel (page 22-85). 2. Insufficient deflector extension. 3. Deformed deflector.
Motor noise	1. Loose motor. 2. Worn gear or bearing. 3. Worn cable. 4. Deformed cable pipe.
Sunroof does not move, but motor turns.	1. Foreign matter stuck between guide rail and sub guide rail (page 22-86). 2. Interference between moving parts. 3. Cable slider loose. 4. Cable pipe loose or not attached properly. 5. Clutch out of adjustment (page 22-83). 6. Sunroof not tilting up properly.
Sunroof does not move and motor does not turn (Sunroof can be moved manually).	1. Blown fuse. 2. Faulty switch (page 25-17). 3. Battery run down (page 27-5). 4. Faulty relay (page 25-18).
Sunroof vibrates	1. Worn rear slide stay (page 22-86). 2. Improperly installed guide rails.
Sunroof remains tilted	1. Faulty cable slider (page 22-91). 2. Faulty limit switch (page 25-18).

Sunroof (Coupe)

Height Adjustment

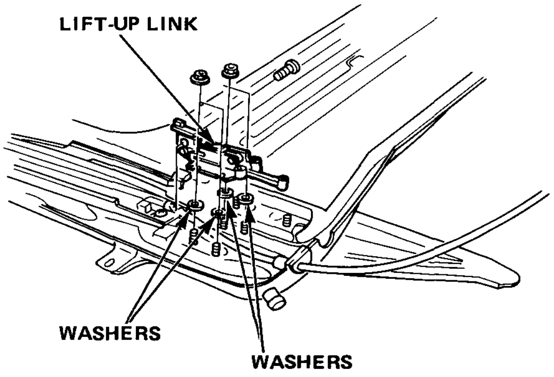
The roof panel should be flush with the sunroof seal.

1. To adjust the front of the sunroof, remove the sunroof panel (page 22-84) and add or remove shims between the slide stay and the sunroof panel as shown.



2. To adjust the rear height, remove the lift-up link (page 22-89) and add or remove washers between the lift-up link and frame as shown.

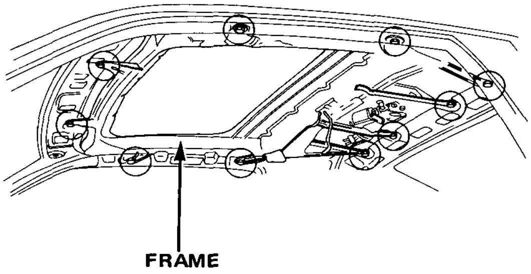
   NOTE: The washers should be of equal thickness.



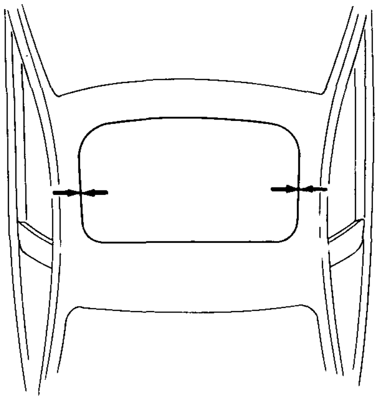
Side Clearance Adjustment

If sunroof seal fits too tight against the roof panel on one side when closed, remove the headliner, then:

1. Loose all frame mount bolts.



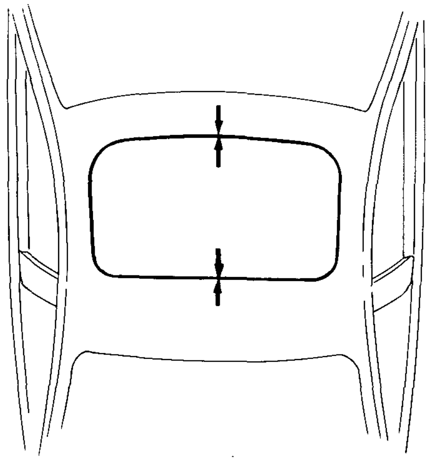
2. Side-to-side fit of sunroof seal can be adjusted by moving it right or left by hand.



3. Tighten bolts, re-check.

Closing Fit

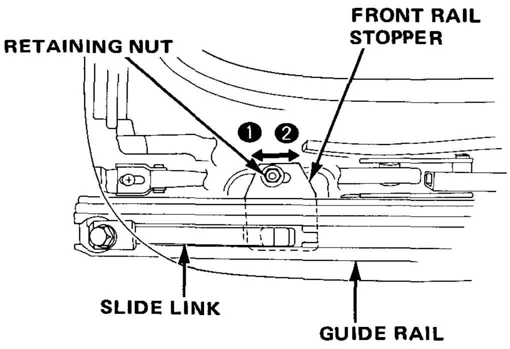
If the fit of the sunroof seal is too tight at the front seal when the sunroof is closed, or too tight at the rear seal when it is pulled down from the pick-up position, proceed as follows:



1. Open the sunroof fully.
2. Loosen the front rail stopper nuts.
3. Slide the stoppers forward or back until the sunroof closes snugly.

   NOTE: Slide the right and left stoppers equally.

   ❶ : To increase clearance at rear seal.
   ❷ : To increase clearance at front seal.

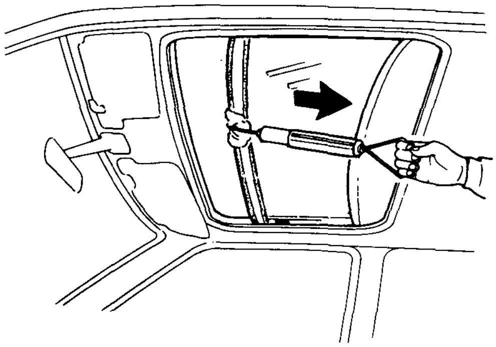

FRONT RAIL STOPPER
RETAINING NUT
❶ ❷
SLIDE LINK
GUIDE RAIL

Closing Force Check

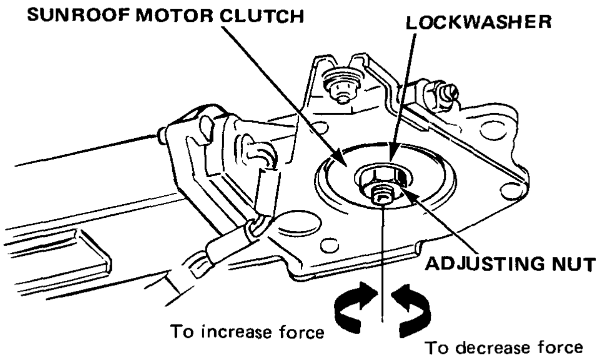
1. After installing all removed parts, have a helper hold the switch to close the sunroof while you measure force required to stop it. Attach spring scale as shown. Read force as soon as sunroof stops moving, then immediately release the switch and spring scale.

   CAUTION: When using the spring scale, protect the leading edge of the sunroof with a shop rag.

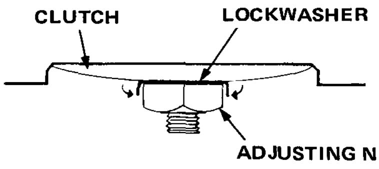
   Closing Force: 196–245 N (20–30 kg, 44–66 lb)



2. If force is not within specification, adjust by turning sunroof motor clutch adjusting nut.


SUNROOF MOTOR CLUTCH
LOCKWASHER
ADJUSTING NUT
To increase force
To decrease force

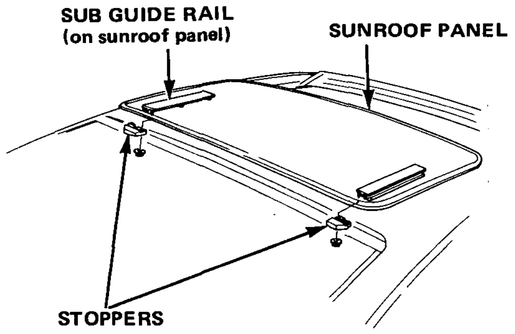
3. After adjusting, install a new lockwasher and bend it against flat on the adjusting nut.


CLUTCH
LOCKWASHER
ADJUSTING NUT

Sunroof (Coupe)

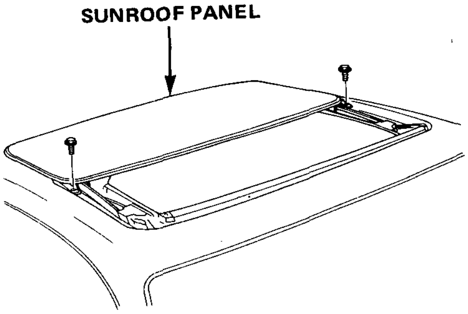
Sunroof Panel Replacement

1. Open the sunroof.
2. Remove the rear stoppers by removing the attaching nuts.


SUB GUIDE RAIL
(on sunroof panel)
SUNROOF PANEL
STOPPERS

3. Remove the front mounting bolts. Remove the sunroof panel from the rear slide stay by sliding it forward by hand.

   NOTE: Use extreme care to avoid damaging the body when removing the panel.


SUNROOF PANEL

4. Install the sunroof panel in the reverse order of removal.

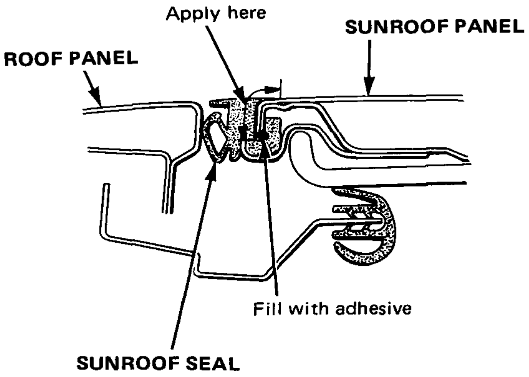
Seal Repair/Installation

If a seal is leaking, or if it is to be replaced, proceed as follows.

1. Remove the sunroof panel; remove the sunroof liner, front slide stay and deflector slider.
2. Remove the seal holder. Carefully peel the seal off the sunroof panel.
3. Clean the seal attaching surfaces with a clean cloth dampened in un-leaded gasoline or alcohol.

   NOTE: After cleaning, keep oil, grease or water from getting on the surface.

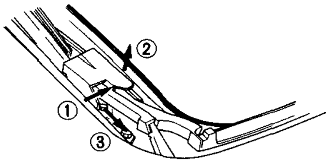
4. Fill the seal groove with adhesive. Coat the seal attaching surfaces of the sunroof panel with the same adhesive.


Apply here
SUNROOF PANEL
ROOF PANEL
Fill with adhesive
SUNROOF SEAL

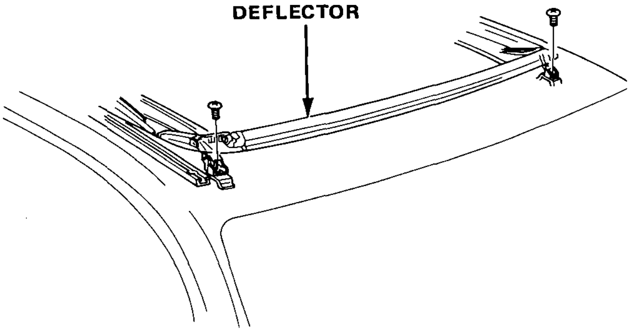
5. Fit the seal onto the sunroof panel evenly all the way around.
6. Wipe off excess adhesive with a clean cloth dampened with un-leaded gasoline or alcohol.
7. Let the sunroof panel stand for at least 4 hours after installing the seal.

Wind Deflector Replacement

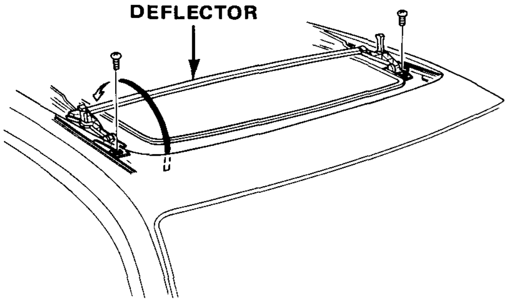
1. Remove the hinge covers:
   ① Press the front end.
   ② Lift the cover up.
   ③ Slide it off forward.



2. Remove the deflector mount screws.



3. Swing the deflector over backward; remove the rear mount screws.

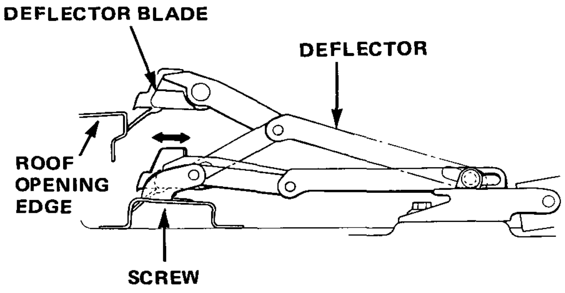


4. Install the deflector in the reverse order of removal. Adjust the deflector.

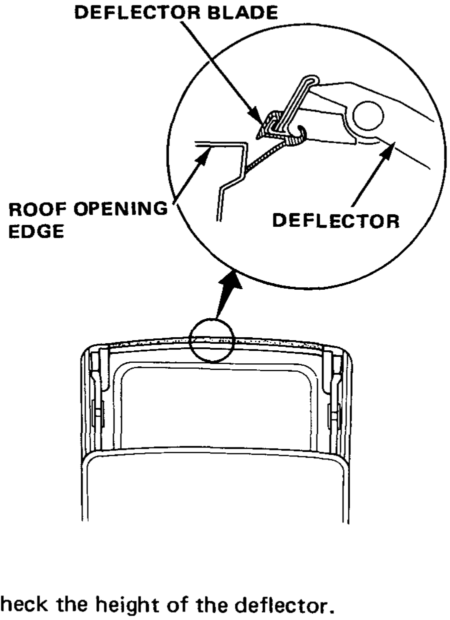
Wind Deflector Adjustment

NOTE: A gap between deflector blade and roof opening edge will cause wind noise when driving at high speed with the roof open.

1. Open the sunroof fully.
2. Loosen the deflector mount screws.


DEFLECTOR BLADE
DEFLECTOR
ROOF OPENING EDGE
SCREW

3. Adjust the deflector forward or back so the edge of its blade touches the front edge of the roof opening evenly.


DEFLECTOR BLADE
ROOF OPENING EDGE
DEFLECTOR

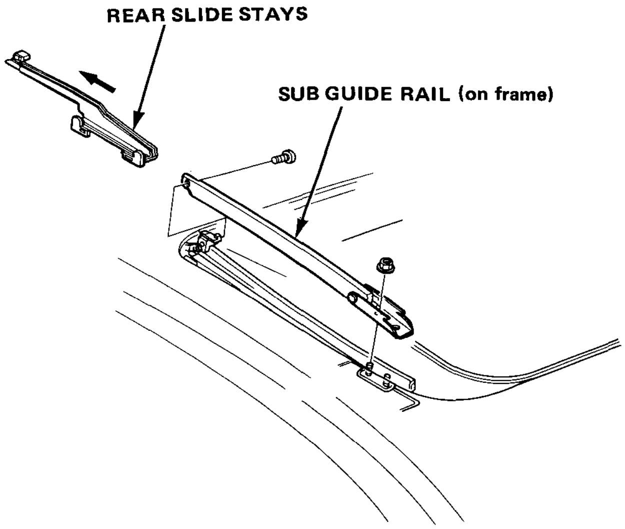
4. Check the height of the deflector.

   NOTE: The height of the deflector cannot be adjusted. If damaged or deformed, replace or repair it.

Sunroof (Coupe)

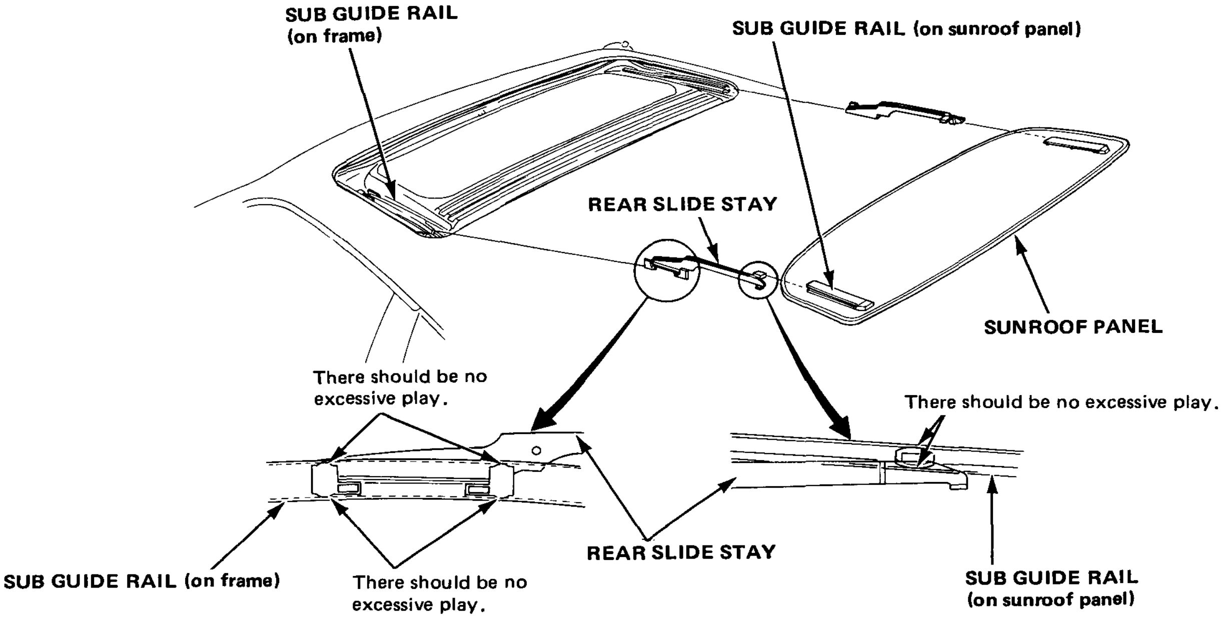
Rear Slide Stay Replacement

1. Remove the sunroof panel (page 22-84).
2. Remove the wind deflector (page 22-85).
3. Remove the mount nut and screw and remove the sub guide rail (on frame); slide the rear slide stay off the guide rail.
4. Install the stay in the reverse order of removal. Before installing the rear slide stay, check that there is no excessive play between the stay and sub guide rails (on the sunroof panel and the frame.)


REAR SLIDE STAYS
SUB GUIDE RAIL (on frame)

Rear Slide Stay Wear Inspection

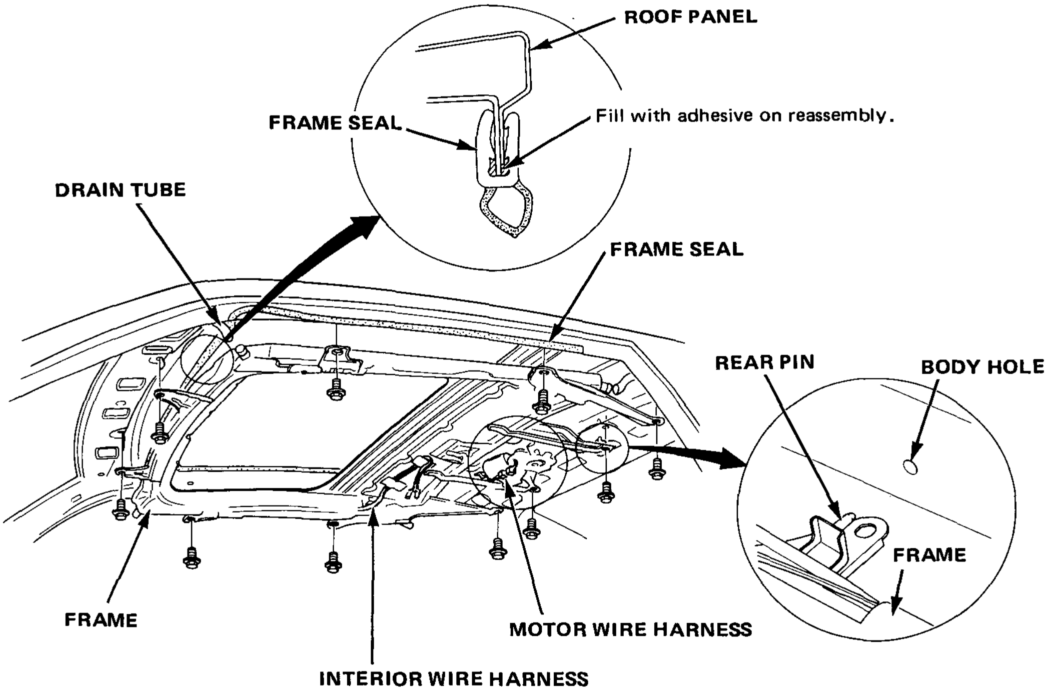
Remove the rear slide stays. Check the sub guide rails (on the sunroof panel and the frame) and rear slide stays for excessive wear on the sliding faces. Replace the rear slide stays with new ones if worn excessively.


SUB GUIDE RAIL
(on frame)
SUB GUIDE RAIL (on sunroof panel)
REAR SLIDE STAY
SUNROOF PANEL
There should be no excessive play.
There should be no excessive play.
SUB GUIDE RAIL (on frame)
There should be no excessive play.
REAR SLIDE STAY
SUB GUIDE RAIL
(on sunroof panel)

Drain Tube, Frame, and Frame Seal Replacement

1. Remove the sunroof panel (page 22-84) and the headliner (page 22-79).
2. Disconnect the motor wire harness; remove the tape securing the interior light wire harness.
3. Slide back the drain tube clamps and remove the drain tubes.
4. Remove the frame mount bolts, and remove the frame from the car.

   NOTE:
   - Remove the 2 front bolts last.
   - Use added care not to damage the seats or other interior trim.
5. Carefully remove the frame seal.


ROOF PANEL
FRAME SEAL
Fill with adhesive on reassembly.
DRAIN TUBE
FRAME SEAL
REAR PIN
BODY HOLE
FRAME
FRAME
MOTOR WIRE HARNESS
INTERIOR WIRE HARNESS

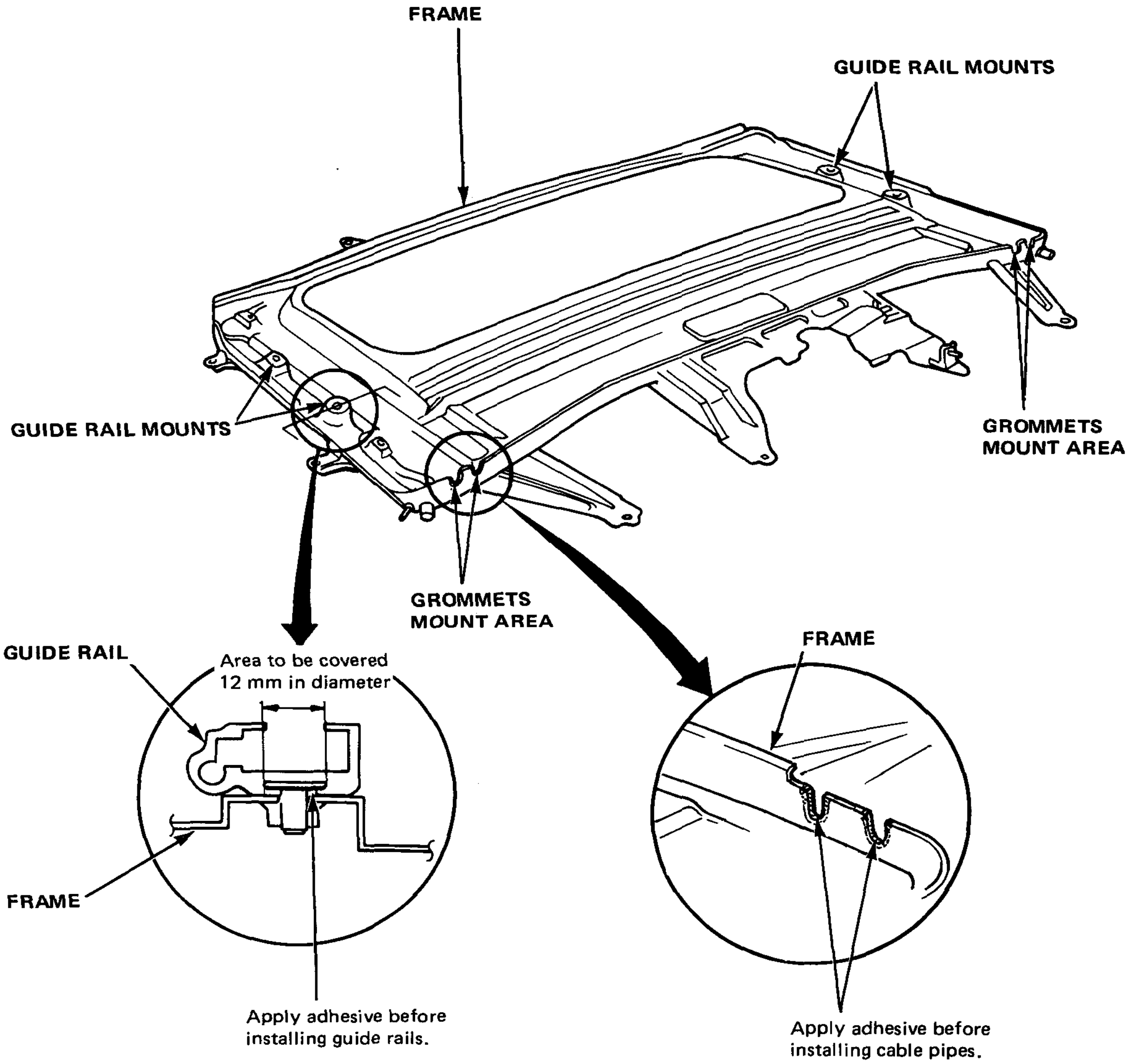
6. To install, insert the frame's rear pins into the body holes, then install parts in the reverse order of removal.

   NOTE:
   - When installing the frame seal, fill the groove with adhesive.
   - Do not tighten the frame mount bolts before adjusting the side clearance of the sunroof (page 22-82).

Sunroof (Coupe)

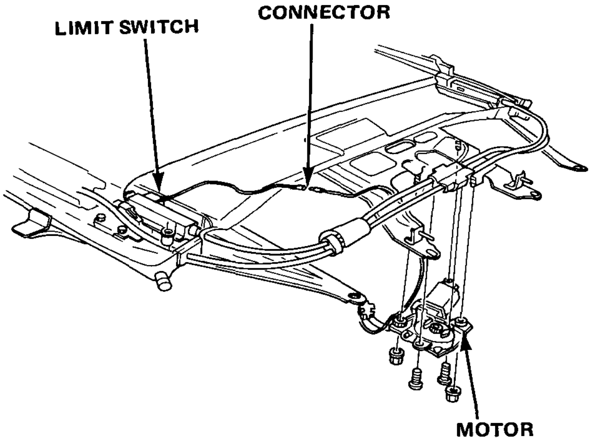
Frame Sealing

Water may leak through one or more of the 4 guide rail mounts or cable pipe grommets. Use adhesive at the points shown, to avoid leaks when the guide rails or cable pipes are reinstalled.


FRAME
GUIDE RAIL MOUNTS
GUIDE RAIL MOUNTS
GROMMETS MOUNT AREA
GROMMETS MOUNT AREA
GUIDE RAIL
Area to be covered 12 mm in diameter
FRAME
FRAME
Apply adhesive before installing guide rails.
Apply adhesive before installing cable pipes.

Motor Removal

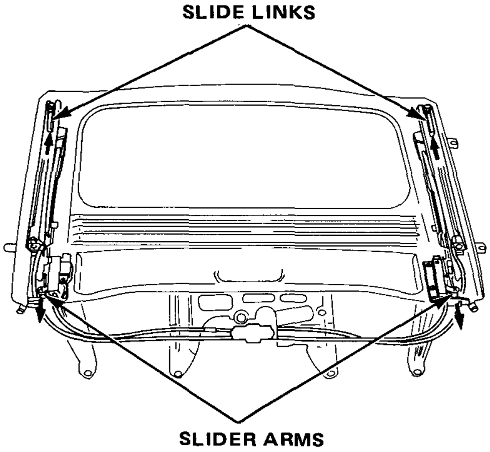
1. *Remove the headliner (page 22-79).*
2. Disconnect the motor and the limit switch.
3. Remove the motor by removing the 2 screws and 3 nuts.



LIMIT SWITCH
CONNECTOR
MOTOR

Motor Installation

1. Check that the slide links are fully forward, and cable slider arms are fully to the rear (Sunroof, completely closed).



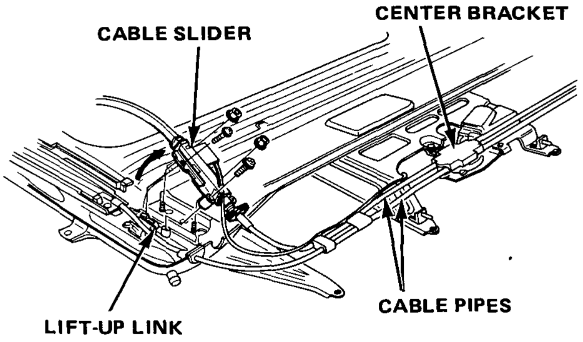
SLIDE LINKS
SLIDER ARMS

2. Check the gears for wear or damage; install the motor (Motor and limit switch is on pages 25-17 and 18).

Lift-up Link Replacement

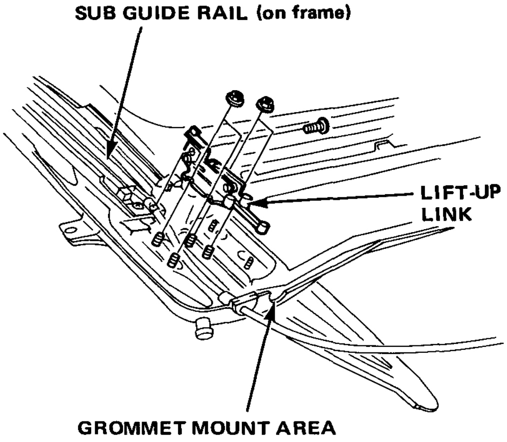
1. Remove the frame (page 22-87).
2. Remove the 2 nuts and 2 screws attaching the cable slider.
3. Raise the cable slider just enough to remove the lift-up link nuts.

   NOTE: Do not force the slider up as this will deform the cable pipes. If you encounter difficulty in raising the slider, remove the motor and center bracket.



CENTER BRACKET
CABLE SLIDER
CABLE PIPES
LIFT-UP LINK

4. Remove the lift-up link by removing the sub guide rail (on frame) screw and the 4 link nuts.



SUB GUIDE RAIL (on frame)
LIFT-UP LINK
GROMMET MOUNT AREA

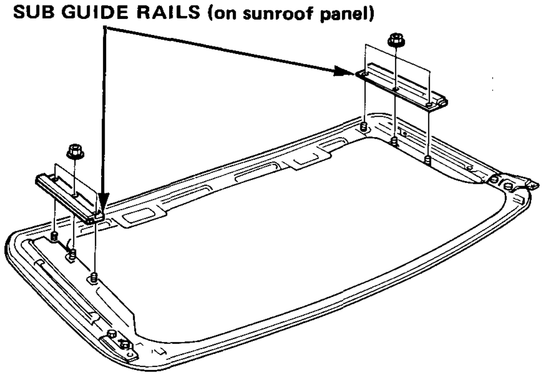
5. Install the link in the reverse order of removal. Before installing the cable pipes, apply adhesive to the grommet mount area of the frame (see page 22-88).

Sunroof (Coupe)

Guide Rail Replacement

Sub Guide Rail (on Sunroof panel):

1. Remove the sunroof panel (page 22-84).
2. Remove the nuts and sub guide rails.

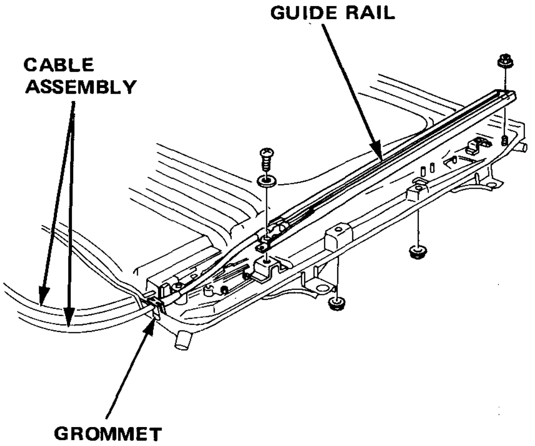

SUB GUIDE RAILS (on sunroof panel)

Sub Guide Rail (on frame):

- See page 22-86.

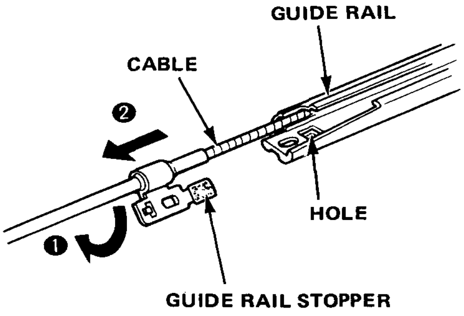
Guide Rail:

1. Remove the frame (page 22-87).
2. Remove one screw and the 3 nuts attaching the guide rail.


GUIDE RAIL
CABLE ASSEMBLY
GROMMET

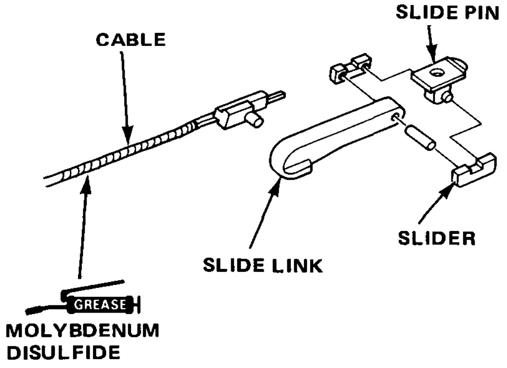
3. Pry the guide rail stopper out of the hole of the guide rail; pull out the cable.

   NOTE: Remove the guide rail slowly and carefully as it is cemented to the frame.


GUIDE RAIL
CABLE
❷
HOLE
❶
GUIDE RAIL STOPPER

4. Install the guide rail in the reverse order of removal, and also:

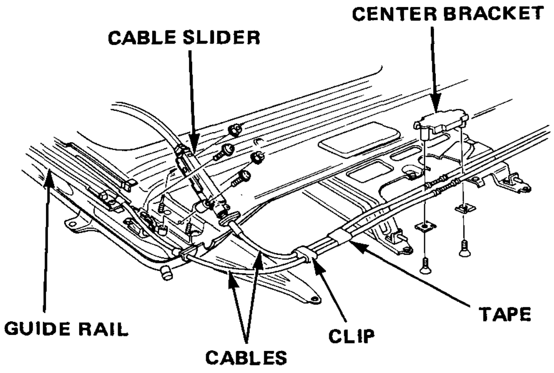
   - Check that the slide pin, slider and slide link are reassembled properly when installing the cable to the guide rail.


SLIDE PIN
CABLE
SLIDER
SLIDE LINK
GREASE
MOLYBDENUM DISULFIDE

   - Before installing the cable pipes and guide rails on the frame, coat the cable pipe grommets and guide rails attaching surfaces with adhesive (see page 22-88).

Cable Removal

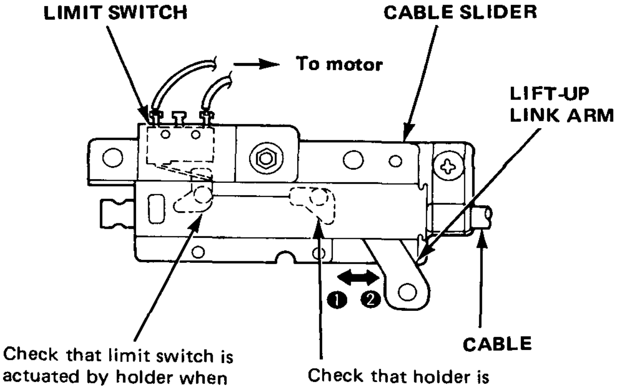
1. Remove the frame (page 22-87) and the motor (page 22-89).
2. Remove the guide rails (page 22-90).
3. Remove the screws and center bracket, then pry off all cable clips.
4. Take the cable slider off the frame by removing the 2 nuts and 2 screws.


CENTER BRACKET
CABLE SLIDER
GUIDE RAIL
TAPE
CLIP
CABLES

5. Carefully remove the cables being sure not to bend the cable pipes.

Cable Installation/Inspection

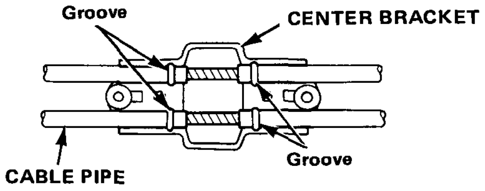
1. Check the cables for wear or damage.
2. Apply molybdenum disulfide grease to the cables. Route the cables through the cable pipes.
3. Check operation of the cable slider.


LIMIT SWITCH
CABLE SLIDER
To motor
LIFT-UP LINK ARM
❶ ❷
CABLE

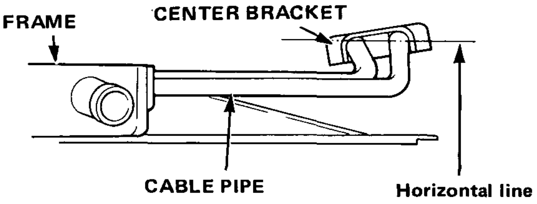
Check that limit switch is actuated by holder when arm is moved in direction ❶

Check that holder is recessed when arm is moved in direction ❷

4. Apply adhesive to the cable pipe grommets and guide rail mount faces of the frame (page 22-88).
5. Attach the cables to the guide rails, then install then on the frame. Secure the cable pipes with the center bracket and clips.

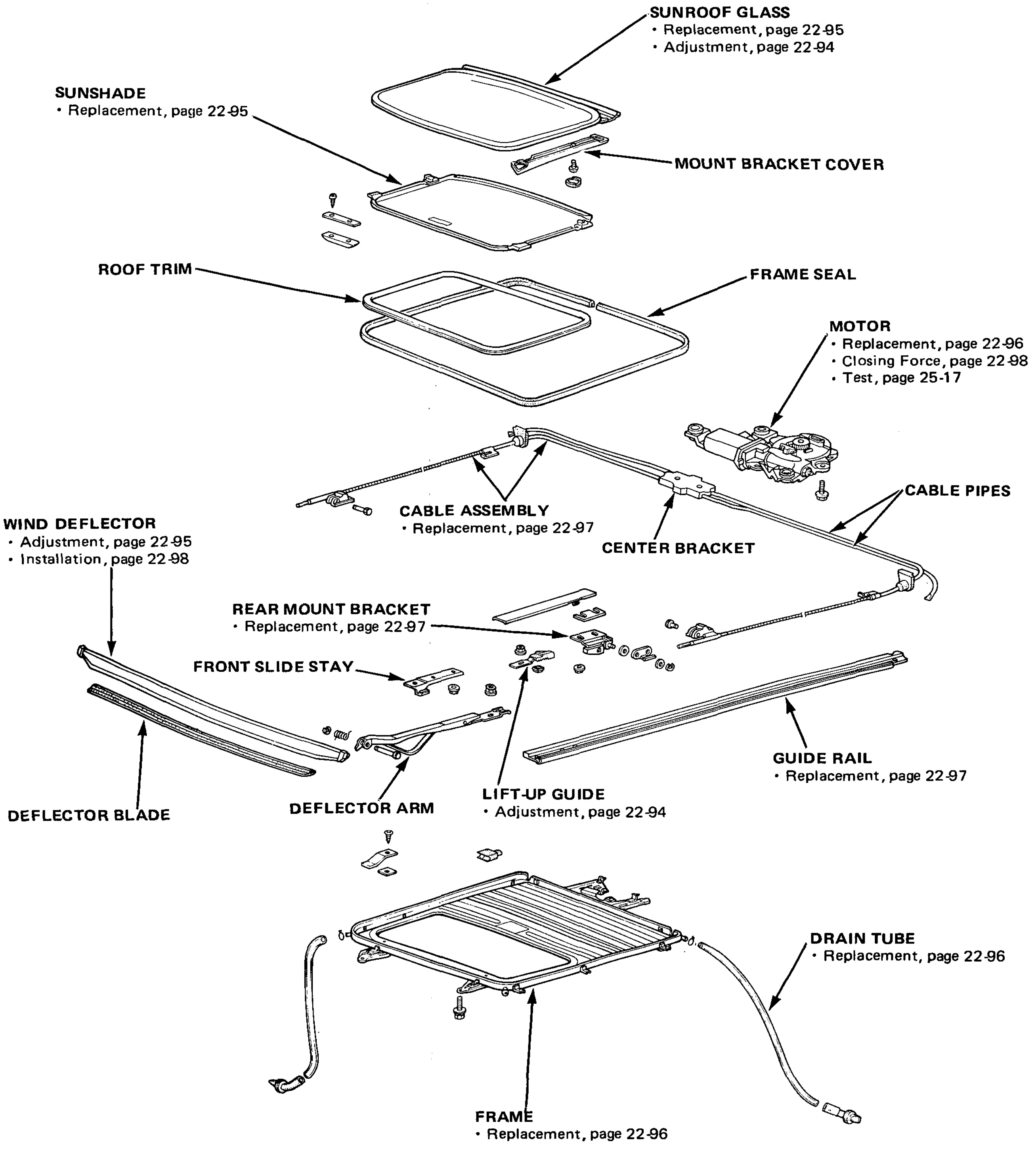

Groove
CENTER BRACKET
CABLE PIPE
Groove

NOTE: Check that the center bracket is not tilted. If it is tilted, check the cable pipes for deformation or improper installation.


FRAME
CENTER BRACKET
CABLE PIPE
Horizontal line

Sunroof (4D H/B)

Index


SUNROOF GLASS
• Replacement, page 22-95
• Adjustment, page 22-94
SUNSHADE
• Replacement, page 22-95
MOUNT BRACKET COVER
ROOF TRIM
FRAME SEAL
MOTOR
• Replacement, page 22-96
• Closing Force, page 22-98
• Test, page 25-17
CABLE PIPES
WIND DEFLECTOR
• Adjustment, page 22-95
• Installation, page 22-98
CABLE ASSEMBLY
• Replacement, page 22-97
CENTER BRACKET
REAR MOUNT BRACKET
• Replacement, page 22-97
FRONT SLIDE STAY
GUIDE RAIL
• Replacement, page 22-97
DEFLECTOR BLADE
DEFLECTOR ARM
LIFT-UP GUIDE
• Adjustment, page 22-94
DRAIN TUBE
• Replacement, page 22-96
FRAME
• Replacement, page 22-96

Troubleshooting

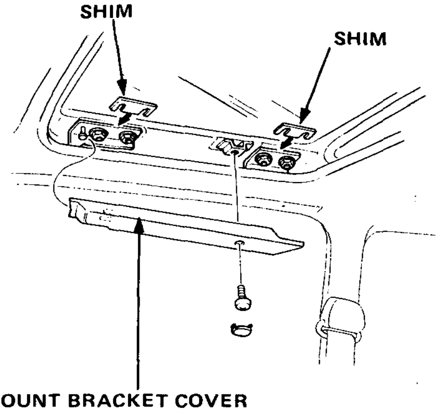
Symptom	Probable Causes
Water leak	1. Gap between glass weatherstrip and roof panel. 2. Deflective or improperly installed glass weatherstrip. 3. Clogged drain tube. 4. Gap between glass weatherstrip and body.
Wind noise	1. Excessive clearance between glass weatherstrip and roof panel.
Deflector noise	1. Improper clearance between deflector blade and roof panel (page 22-95). 2. Insufficient deflector extension. 3. Deformed deflector.
Motor noise	1. Loose motor. 2. Worn gear or bearing. 3. Cable pipe deformed.
Sunroof does not move, but motor turns	1. Foreign matter stuck between guide rail and sliding stay. 2. Interference between parts. 3. Cable pipe loose. 4. Cable pipe not attached properly. 5. Clutch out of adjustment.
Sunroof does not move and motor does not turn (Sliding panel can be moved with sunroof wrench)	1. Blown fuse. 2. Faulty switch (page 25-17). 3. Battery run down (page 27-5). 4. Defective motor.

Sunroof (4D H/B)

Glass Height Adjustment

Roof panel should be even with the glass weatherstrip, to within 1 ± 1.5 mm (0.04 ± 0.06 in.) all the way around. If not, slide sunshade back, and:

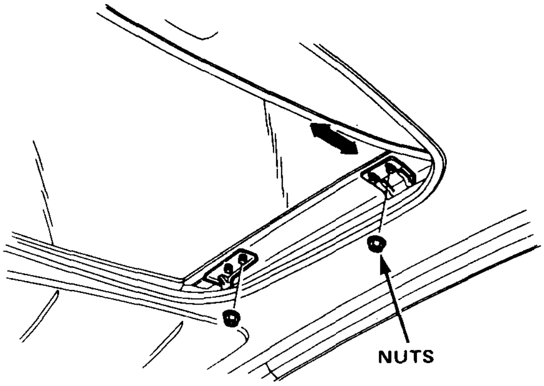
1. Pry plug out of the glass mount bracket cover, remove the screw, then slide cover off to the rear.
2. Loosen mount bracket nuts and install shims between glass frame and bracket as shown.
3. Repeat on opposite side if necessary.



Glass Side Clearance Adjustment

If the glass weatherstrip fits too tight against the roof panel on one side when closed, slide sunshade back, then:

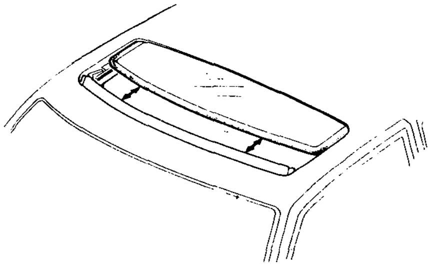
1. Pry plug out of each mount bracket cover, remove screw, then slide cover off to the rear.
2. Loosen all eight mount bracket nuts.
3. Move the glass right or left as necessary.
4. Tighten nuts.

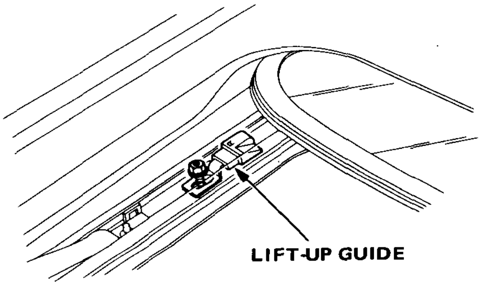


Rear Edge Closing Adjustment

Open the glass about a foot then close it to check where rear edge begines to rise.
If it rises too soon and seats too tight against roof panel, or too late and does not seat tight enough, adjust it:

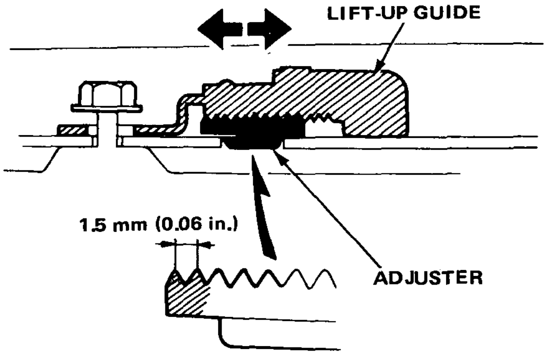
1. Open the glass fully.
2. Remove the rail covers from both sides, and loosen the lift-up guide nuts.





3. Move the guides forward or back, then tighten nuts and re-check roof closing.

   The guides have nothces of 1.5 mm (0.06 in.) each and can be adjusted 2 notches forward or back.

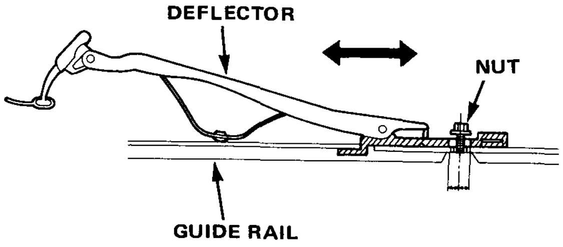


Wind Deflector Adjustment

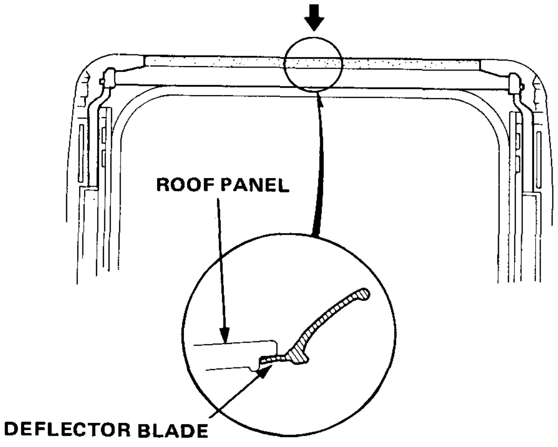
NOTE: A gap between deflector blade and roof panel will cause wind noise when driving at high speed with the roof open.

1. Open the sunroof and pry the rail covers off both sides.
2. Loosen deflector mounting nuts.

   NOTE: Wind deflector can be adjusted 2 mm (0.08 in.) forward or back.



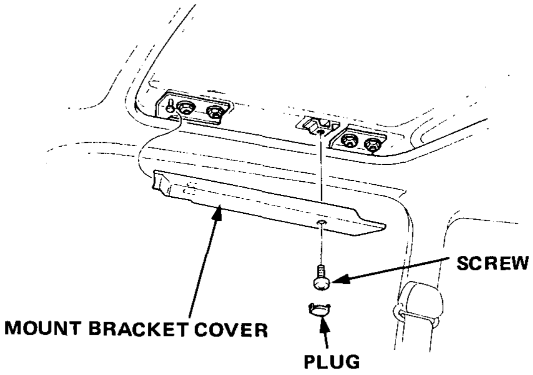
3. Adjust deflector forward or back so the edge of its blade touches the roof panel evenly.


Deflector blade should touch panel across entire front edge.

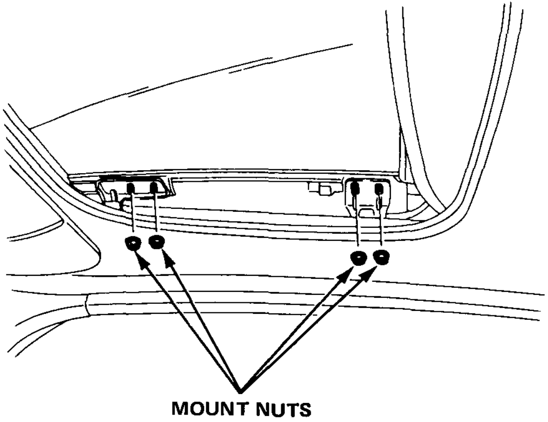
NOTE: The height of the deflector when open cannot be adjusted. If damaged or deformed, repalce it.

Glass and Sunshade Replacement

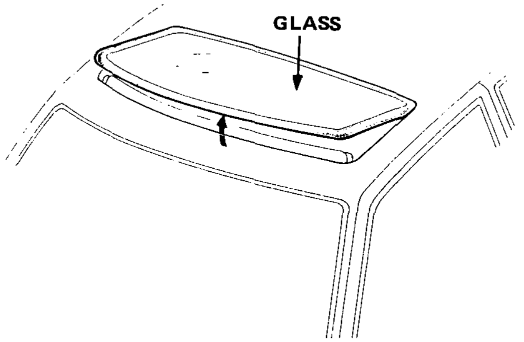
1. Slide sunshade all the way back.
2. Pry plug out of each bracket cover, remove screw, and slide cover off to the rear.



3. Close the glass fully.
4. Remove the nuts from front and rear mounts on both sides.



5. Remove the glass by lifting up and pulling forward as shown.



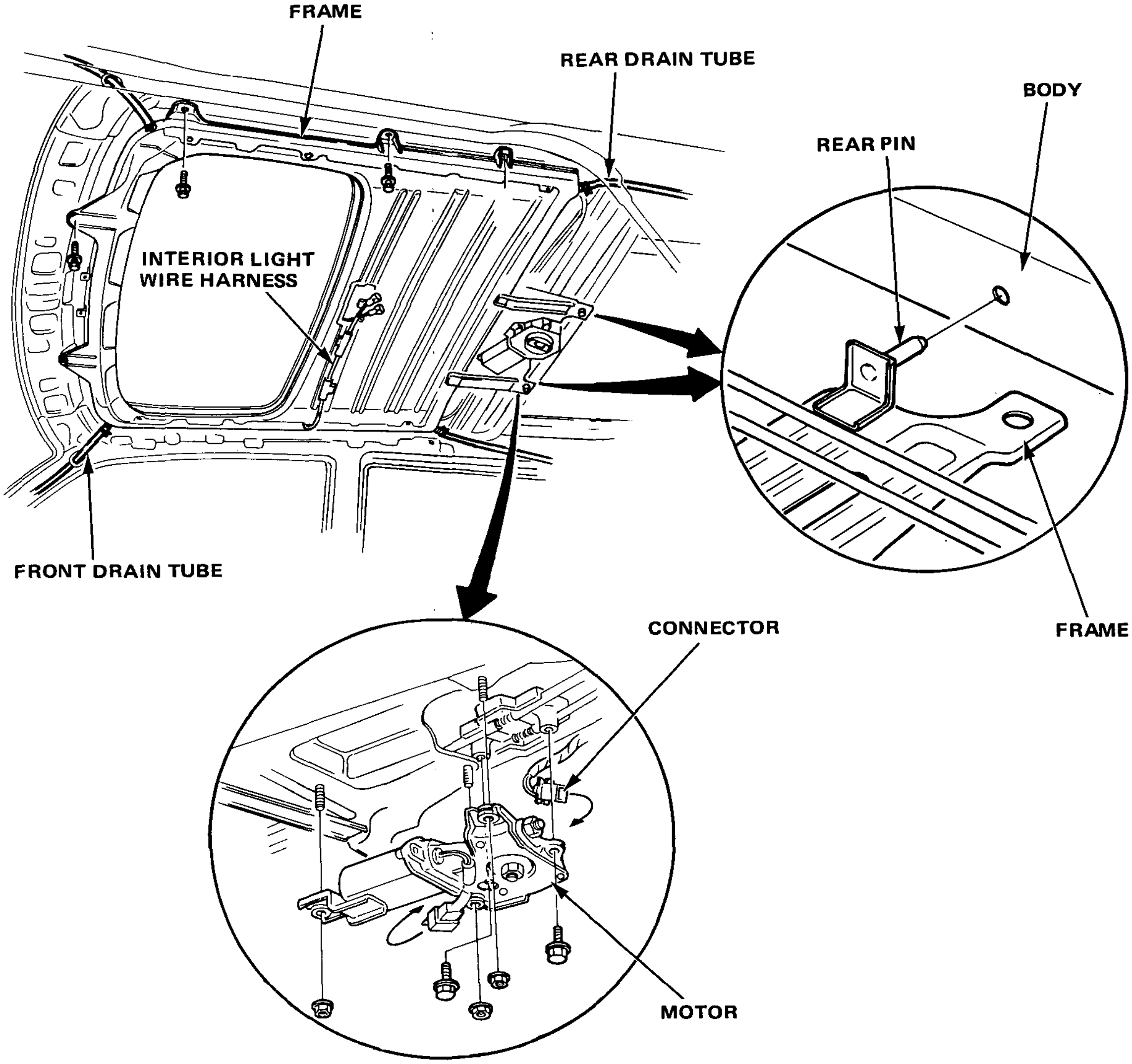
6. The sunshade may now be pulled out.

   NOTE: The sunshade may be bent slightly to ease removal.

Sunroof (4D H/B)

Motor, Drain Tube, and Frame Replacement

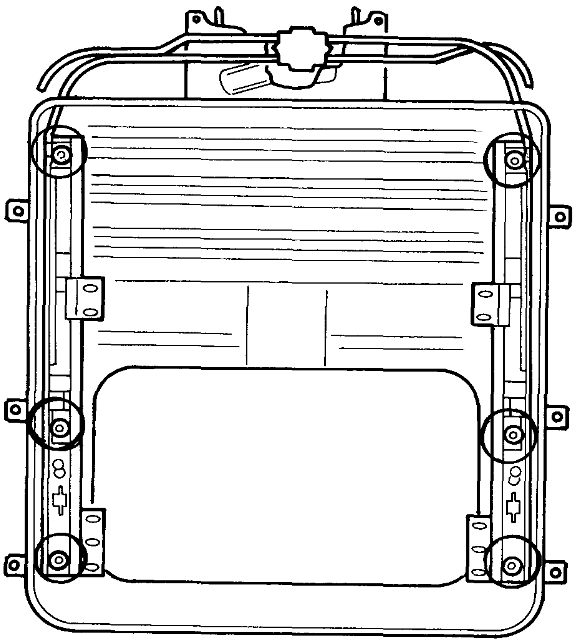
1. Remove the headliner (page 22-79).
2. Remove the sunroof motor by removing the two bolts and three nuts.
3. Disconnect the wire harness at the connector, and remove the motor.


FRAME
REAR DRAIN TUBE
BODY
REAR PIN
INTERIOR LIGHT WIRE HARNESS
FRONT DRAIN TUBE
CONNECTOR
FRAME
MOTOR

4. Slide back the drain tube clamps and remove the drain tubes.
5. Remove the 10 mounting bolts from the sunroof frame, and remove the frame from the car.
6. To install, insert the frame's rear pins into the body holes, then install parts in the reverse order of removal. (Motor test is on page 25-17).

Cable, Guide Rail, and Rear Mount Bracket Replacement

1. Remove the frame (page 22-96).
2. Remove the nuts attaching the guide rails.

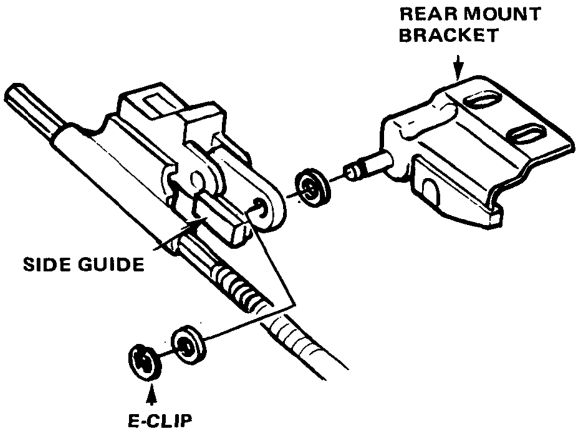


3. Lift off the guide rails and pull out the cable with the rear mount brackets.

   NOTE: Remove the guide rail slowly and carefully as it is cemented to the frame.

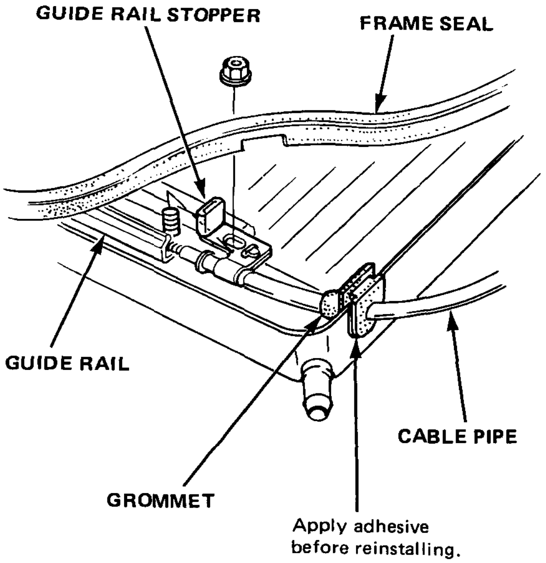
4. Pry the E-clip off the pin, and remove the rear mount bracket from the side guide.

   NOTE: Replace the E-clip with new one whenever it is disassembled.


REAR MOUNT BRACKET
SIDE GUIDE
E-CLIP

5. Install the cable and guide rail in the reverse order of removal, and also:

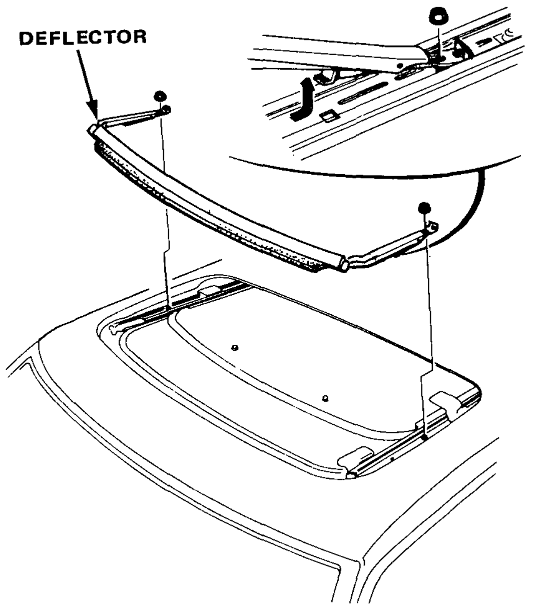
   - Apply molybdenum grease to the inner cable.
   - Before installing the cable pipes and guide rails on the frame, coat the cable pipe grommets and guide rails attaching surfaces with adhesive.


GUIDE RAIL STOPPER
FRAME SEAL
GUIDE RAIL
CABLE PIPE
GROMMET
Apply adhesive before reinstalling.

Sunroof (4D H/B)

Wind Deflector Installation

Installing is done in the reverse order of removal. When installing, make sure to insert the deflector ends tightly into the guide rails and adjust the deflector.

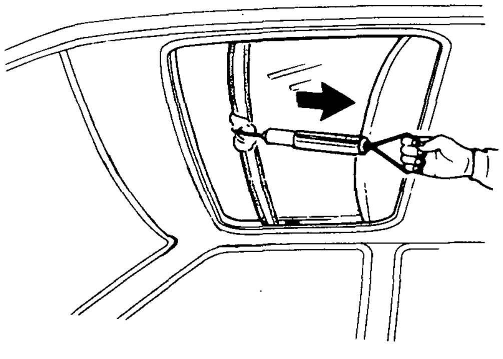


Closing Drag Check (Motor Removed)

Before installing the sunroof motor, measure effort required to close sliding panel using a spring scale as shown.

CAUTION: When using the spring scale, protect the leading edge of the sunroof with a shop rag.

If load is over 98N (10 kg, 22 lb), check side clearance and glass height adjustment (page 22-94).



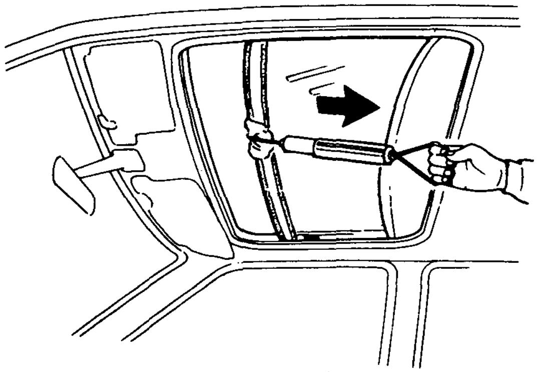
Closing Drag: Less than 98 N (10 kg, 22 lb)

Closing Force Check (Motor Installed)

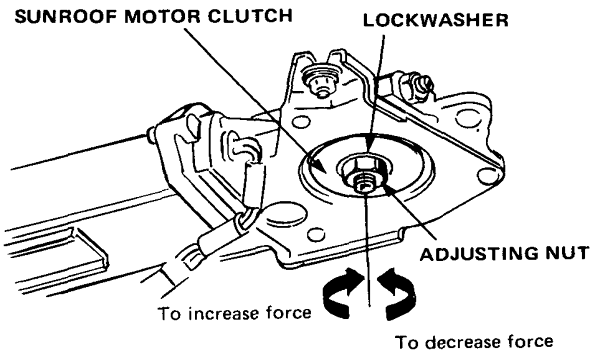
1. After installing all removed parts, have a helper hold the switch to close the sunroof while you measure force required to stop it. Attach spring scale as shown. Read force as soon as glass stops moving, then immediately release the switch and spring scale.

   CAUTION: When using the spring scale, protect the leading edge of the sunroof with a shop rag.

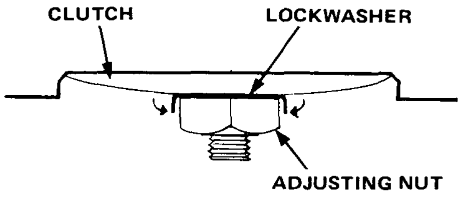
   Closing Force: 196–245 N (20–30 kg, 44–66 lb)



2. If force is not within specification, adjust by turning sunroof motor clutch adjusting nut.



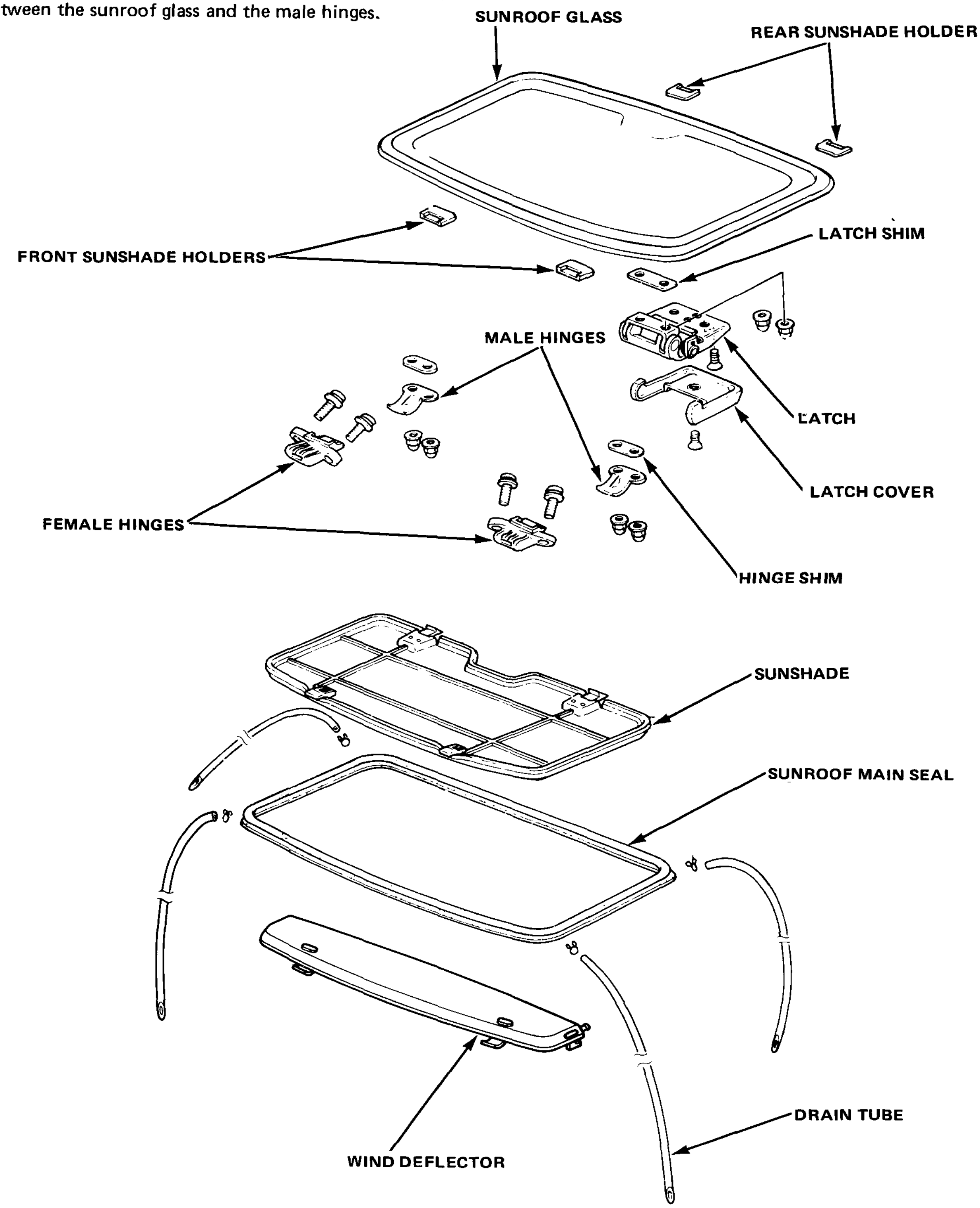
3. After adjusting, install a new lockwasher and bend it against flat on the adjusting nut.



Detachable Sunroof (2D H/B)

Disassembly

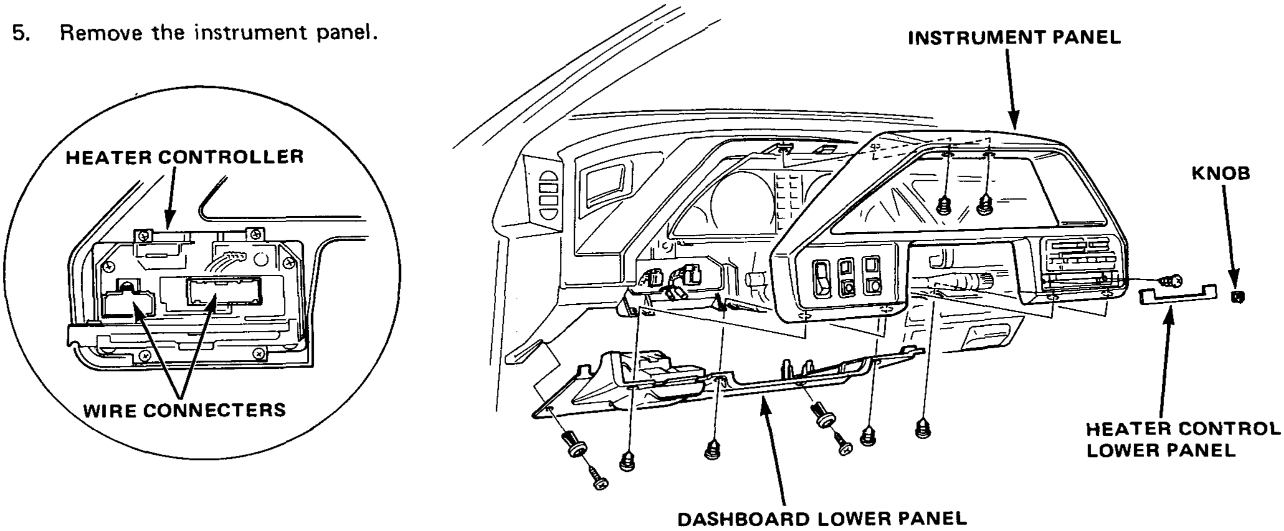
NOTE: To adjust the height of the sunroof, add or remove shims between the sunroof glass and the latch, or between the sunroof glass and the male hinges.


SUNROOF GLASS
REAR SUNSHADE HOLDER
LATCH SHIM
FRONT SUNSHADE HOLDERS
MALE HINGES
LATCH
LATCH COVER
FEMALE HINGES
HINGE SHIM
SUNSHADE
SUNROOF MAIN SEAL
DRAIN TUBE
WIND DEFLECTOR

Instrument Panel

Removal (Coupe)

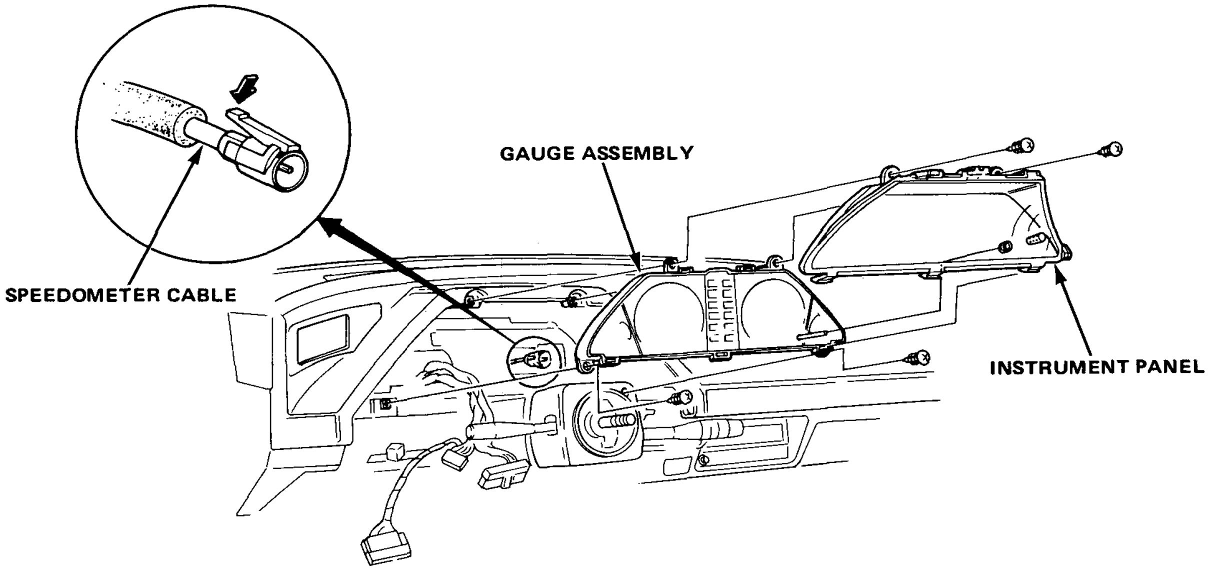
1. Remove the screws and clips, then remove the dashboard lower panel.
2. Remove the heater control knob and lower panel, remove the heater control mount screws.
3. Remove the upper screws.
4. Pull the instrument panel out, then disconnect the wire connecters.
5. Remove the instrument panel.


HEATER CONTROLLER
WIRE CONNECTERS
INSTRUMENT PANEL
KNOB
HEATER CONTROL LOWER PANEL
DASHBOARD LOWER PANEL

6. Remove the four screws, then lift the gauge assembly so you can reach the wire connectors.

   CAUTION: Do not pull on the wires to disconnect connectors.

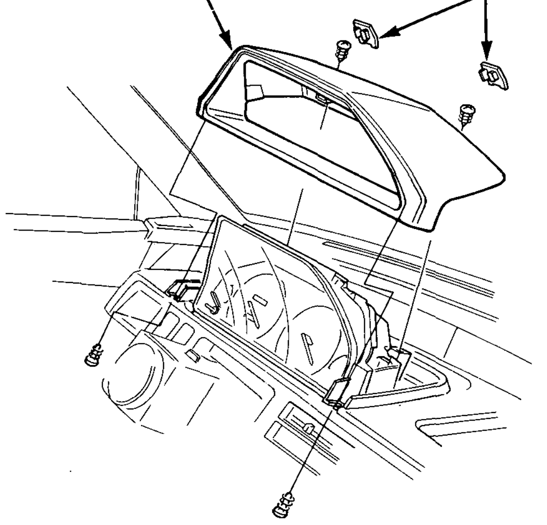
7. Disconnect the speedometer cable and wire connectors, then remove the gauge assembly.


GAUGE ASSEMBLY
SPEEDOMETER CABLE
INSTRUMENT PANEL

– (2D H/B, 4D, and 4D H/B)

2D H/B and 4D:

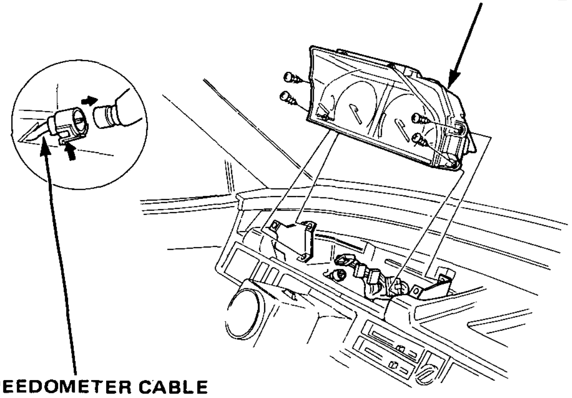
1. Remove the upper caps and the 4 screws.
2. Remove the panel.


INSTRUMENT PANEL
UPPER CAPS

3. Remove the four screws, then lift the gauge assembly so you can reach the wire connectors.

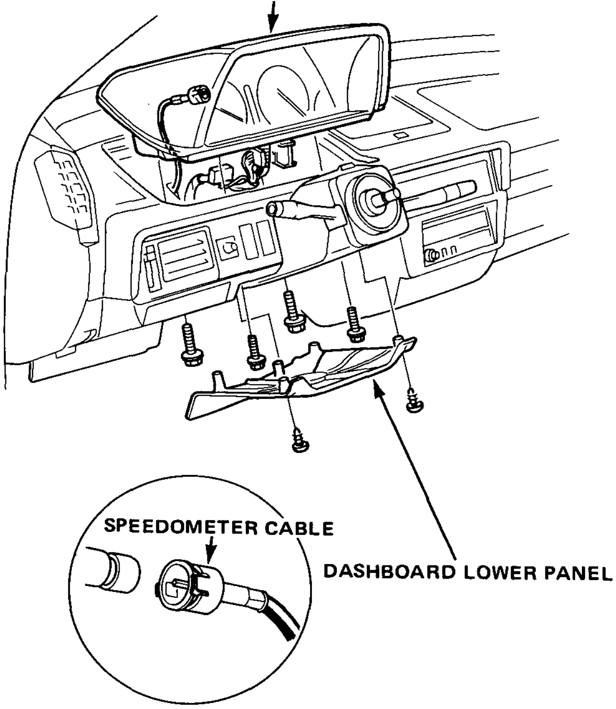
   CAUTION: Do not pull on the wires to disconnect connectors.

4. Disconnect the speedometer cable and wire connectors, then remove the gauge assembly.

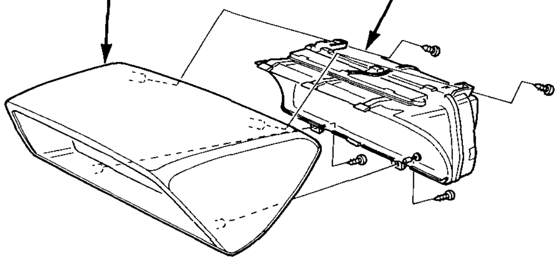

GAUGE ASSEMBLY
SPEEDOMETER CABLE

4D H/B:

1. Remove the screws and the dashboard lower panel.
2. Reaching from under the dashboard, remove the 4 bolts attaching the instrument panel to the dashboard, then disconnect the wire connectors and the speedometer cable.
3. Remove the instrument panel with the gauge assembly.


INSTRUMENT PANEL
SPEEDOMETER CABLE
DASHBOARD LOWER PANEL

4. Separate the panel and the gauge assembly by removing the screws.

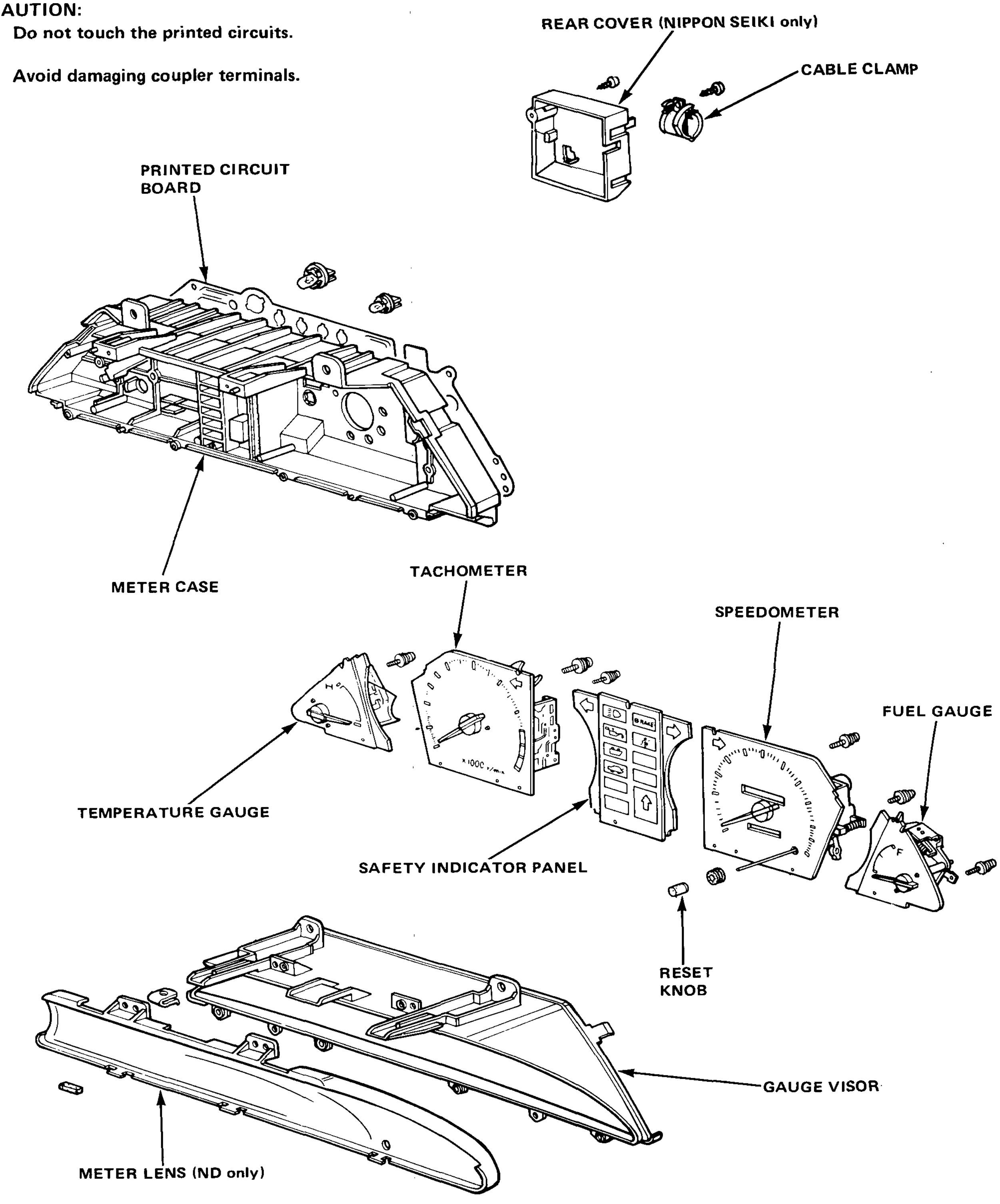

GAUGE ASSEMBLY
INSTRUMENT PANEL

Gauges

Overhaul (Coupe)

CAUTION:

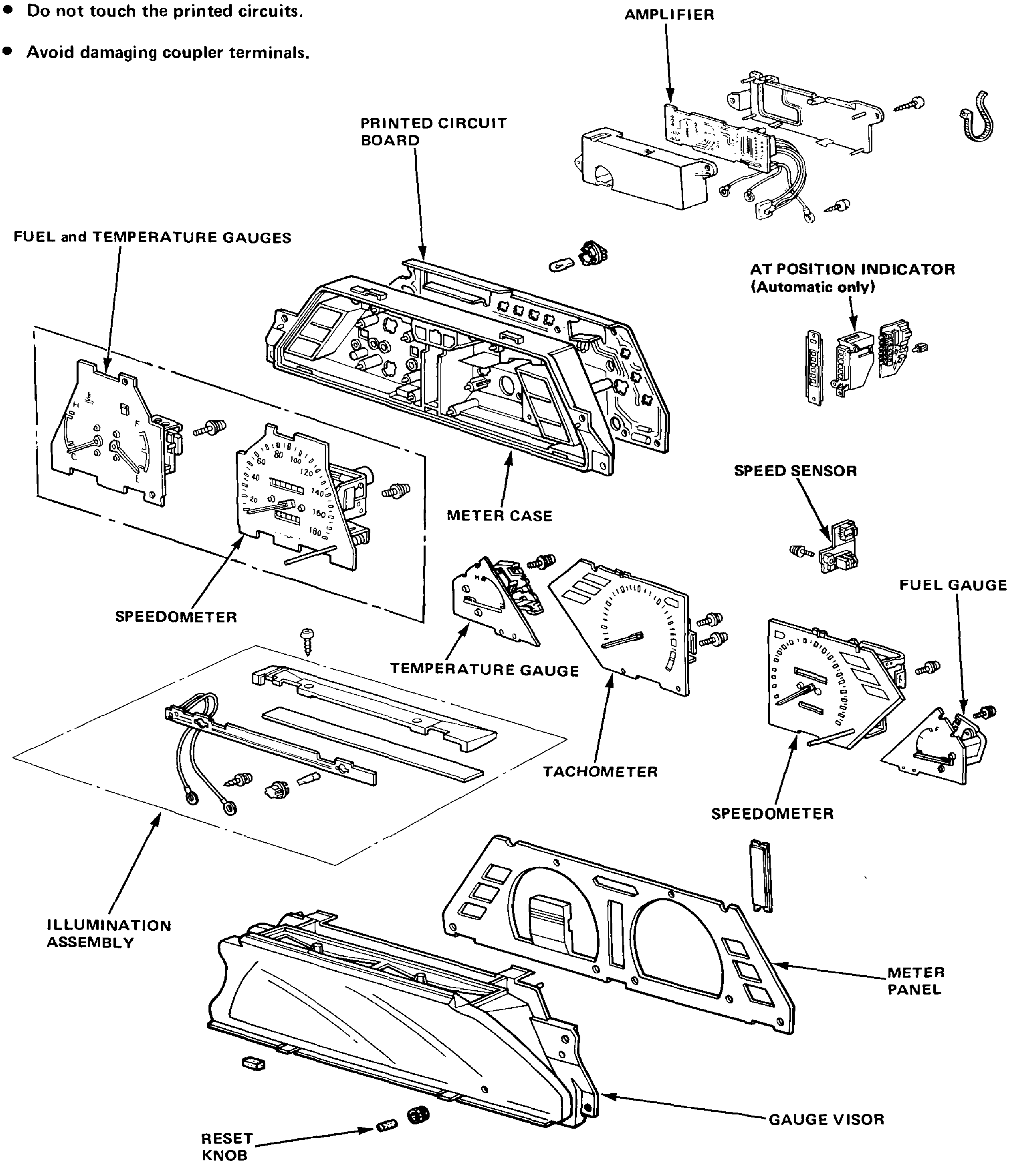
- Do not touch the printed circuits.
- Avoid damaging coupler terminals.


REAR COVER (NIPPON SEIKI only)
CABLE CLAMP
PRINTED CIRCUIT BOARD
METER CASE
TACHOMETER
SPEEDOMETER
FUEL GAUGE
TEMPERATURE GAUGE
SAFETY INDICATOR PANEL
RESET KNOB
GAUGE VISOR
METER LENS (ND only)

– (2D H/B and 4D)

CAUTION:

- Do not touch the printed circuits.
- Avoid damaging coupler terminals.

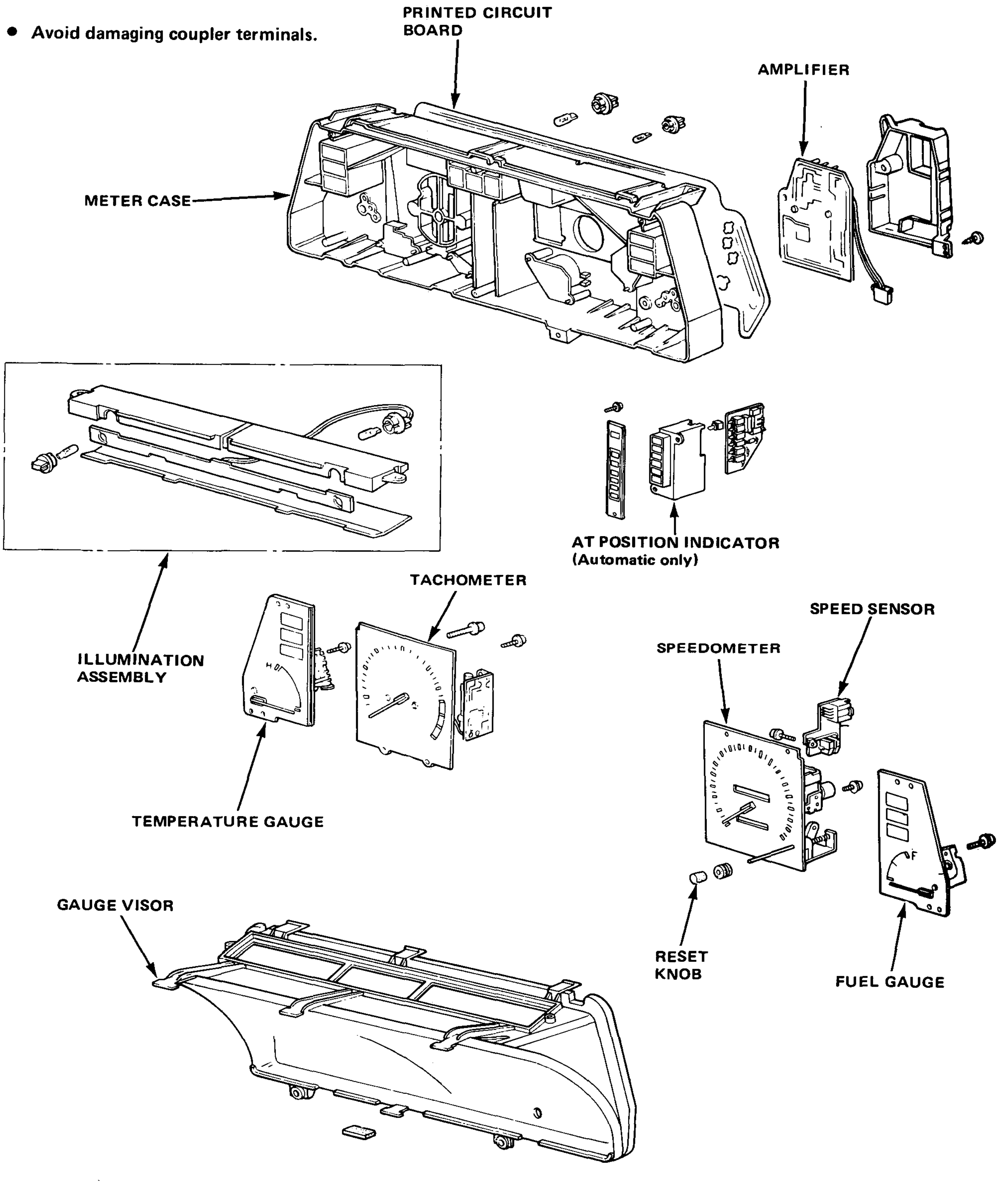

AMPLIFIER
PRINTED CIRCUIT BOARD
FUEL and TEMPERATURE GAUGES
AT POSITION INDICATOR (Automatic only)
METER CASE
SPEED SENSOR
SPEEDOMETER
FUEL GAUGE
TEMPERATURE GAUGE
TACHOMETER
SPEEDOMETER
ILLUMINATION ASSEMBLY
METER PANEL
GAUGE VISOR
RESET KNOB

Gauges

Overhaul (4D H/B)

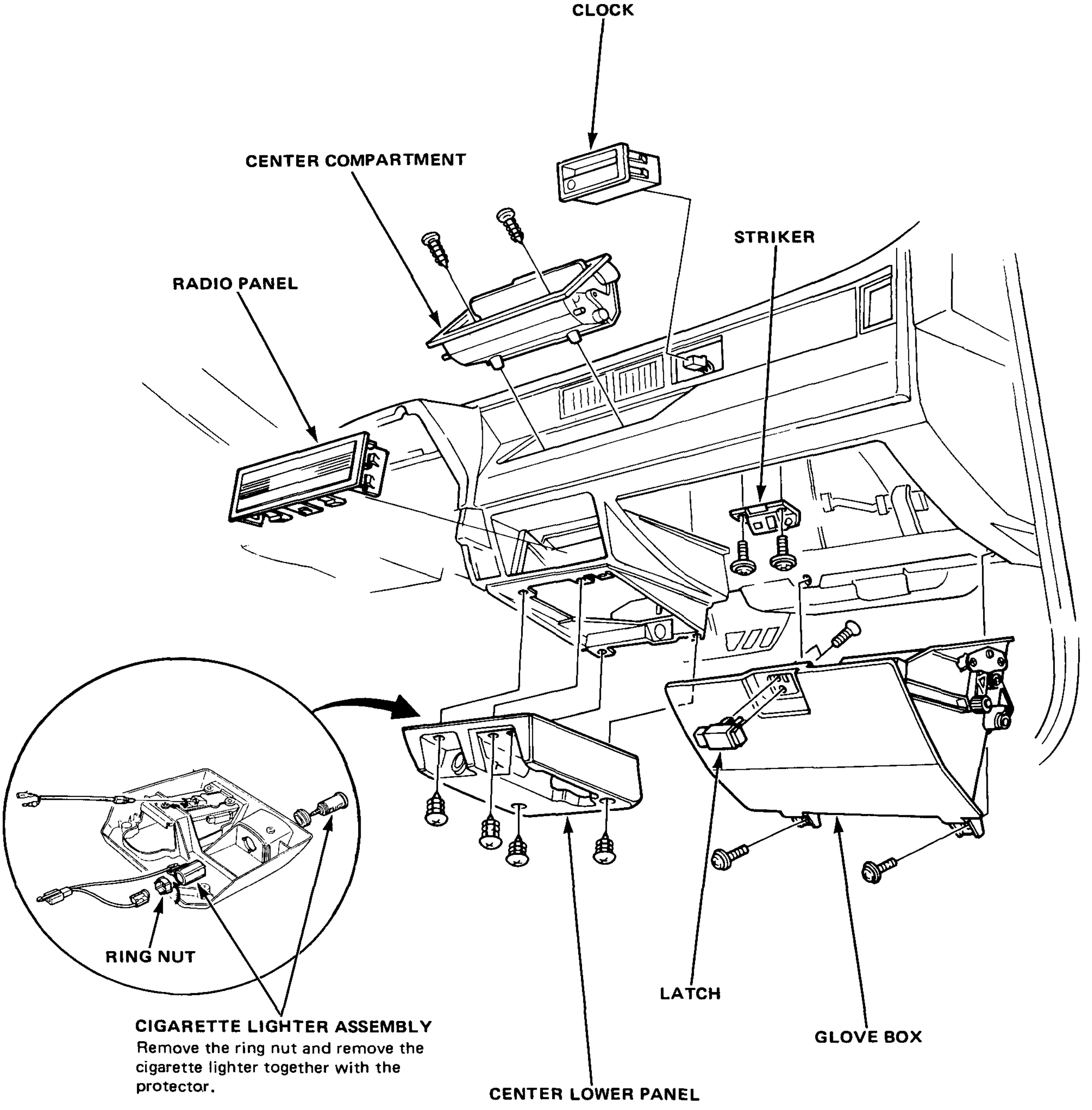
CAUTION:

- Do not touch the printed circuits.
- Avoid damaging coupler terminals.


PRINTED CIRCUIT BOARD
AMPLIFIER
METER CASE
AT POSITION INDICATOR (Automatic only)
TACHOMETER
SPEED SENSOR
SPEEDOMETER
ILLUMINATION ASSEMBLY
TEMPERATURE GAUGE
GAUGE VISOR
RESET KNOB
FUEL GAUGE

Dashboard Accessory

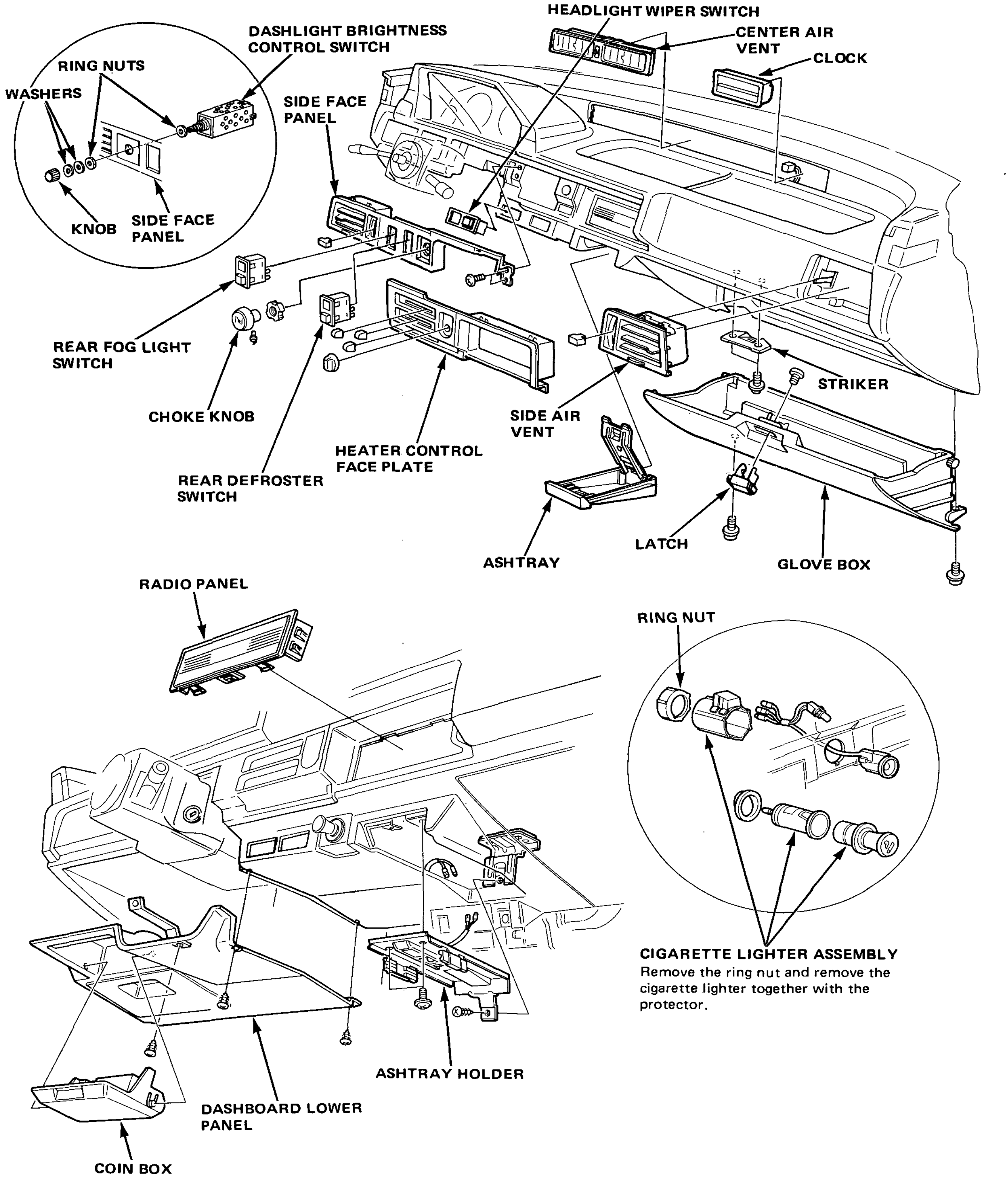
Removal/Installation (Coupe)


CLOCK
CENTER COMPARTMENT
STRIKER
RADIO PANEL
RING NUT
LATCH
GLOVE BOX
CENTER LOWER PANEL

CIGARETTE LIGHTER ASSEMBLY
Remove the ring nut and remove the cigarette lighter together with the protector.

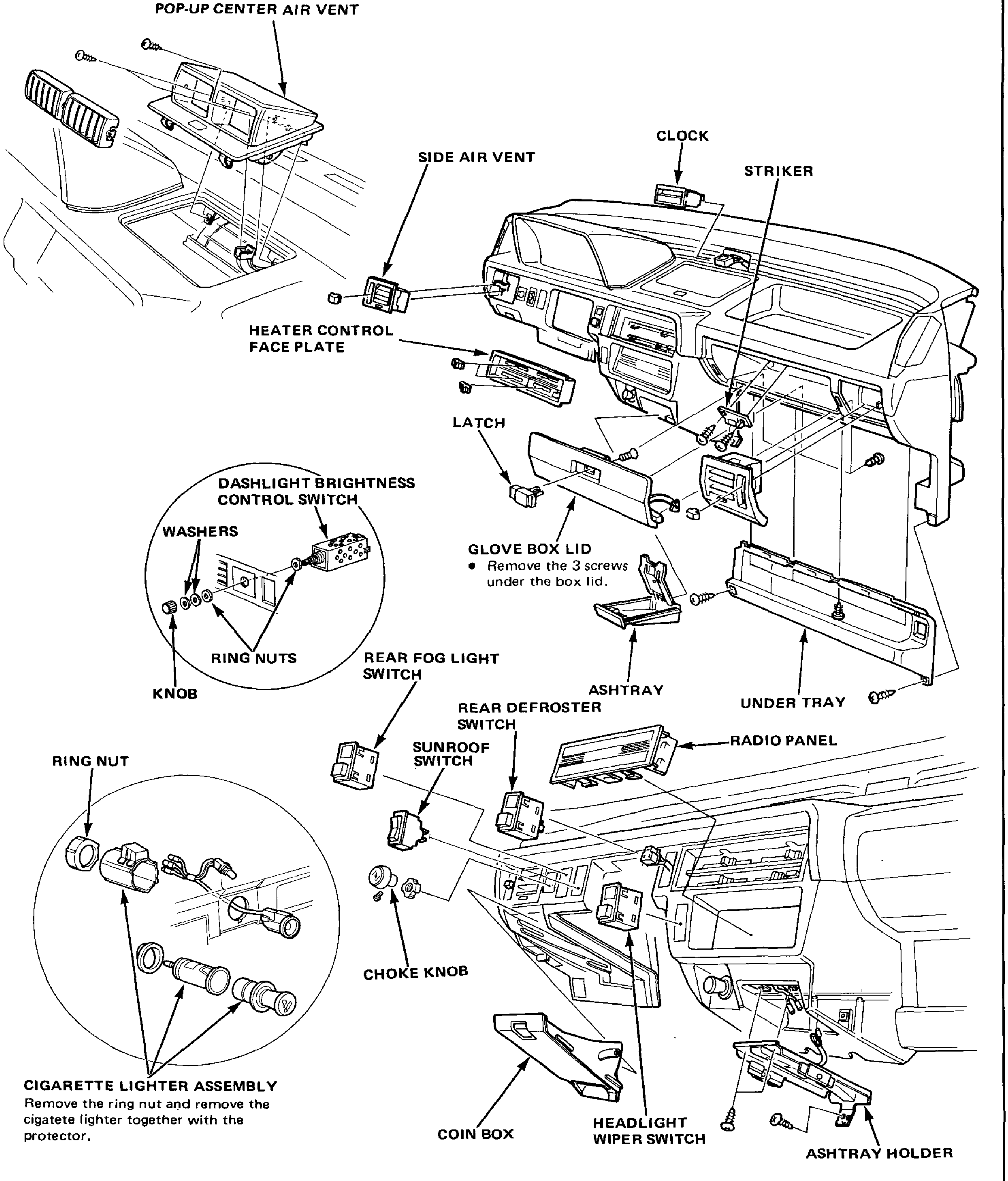
Dashboard Accessory

Removal/Installation (2D H/B and 4D)


HEADLIGHT WIPER SWITCH
DASHLIGHT BRIGHTNESS CONTROL SWITCH
CENTER AIR VENT
CLOCK
RING NUTS
WASHERS
SIDE FACE PANEL
KNOB
SIDE FACE PANEL
REAR FOG LIGHT SWITCH
CHOKE KNOB
REAR DEFROSTER SWITCH
HEATER CONTROL FACE PLATE
SIDE AIR VENT
STRIKER
ASHTRAY
LATCH
GLOVE BOX
RADIO PANEL
RING NUT
ASHTRAY HOLDER
DASHBOARD LOWER PANEL
COIN BOX
CIGARETTE LIGHTER ASSEMBLY

Remove the ring nut and remove the cigarette lighter together with the protector.

— (4D H/B)


POP-UP CENTER AIR VENT
CLOCK
SIDE AIR VENT
STRIKER
HEATER CONTROL FACE PLATE
LATCH
DASHLIGHT BRIGHTNESS CONTROL SWITCH
WASHERS
RING NUTS
KNOB
REAR FOG LIGHT SWITCH
ASHTRAY
UNDER TRAY
REAR DEFROSTER SWITCH
RADIO PANEL
SUNROOF SWITCH
RING NUT
CHOKE KNOB
COIN BOX
HEADLIGHT WIPER SWITCH
ASHTRAY HOLDER

GLOVE BOX LID

- Remove the 3 screws under the box lid.

CIGARETTE LIGHTER ASSEMBLY

Remove the ring nut and remove the cigatete lighter together with the protector.

Dashboard

Replacement (Coupe)

1. To remove the dashboard, first remove the:

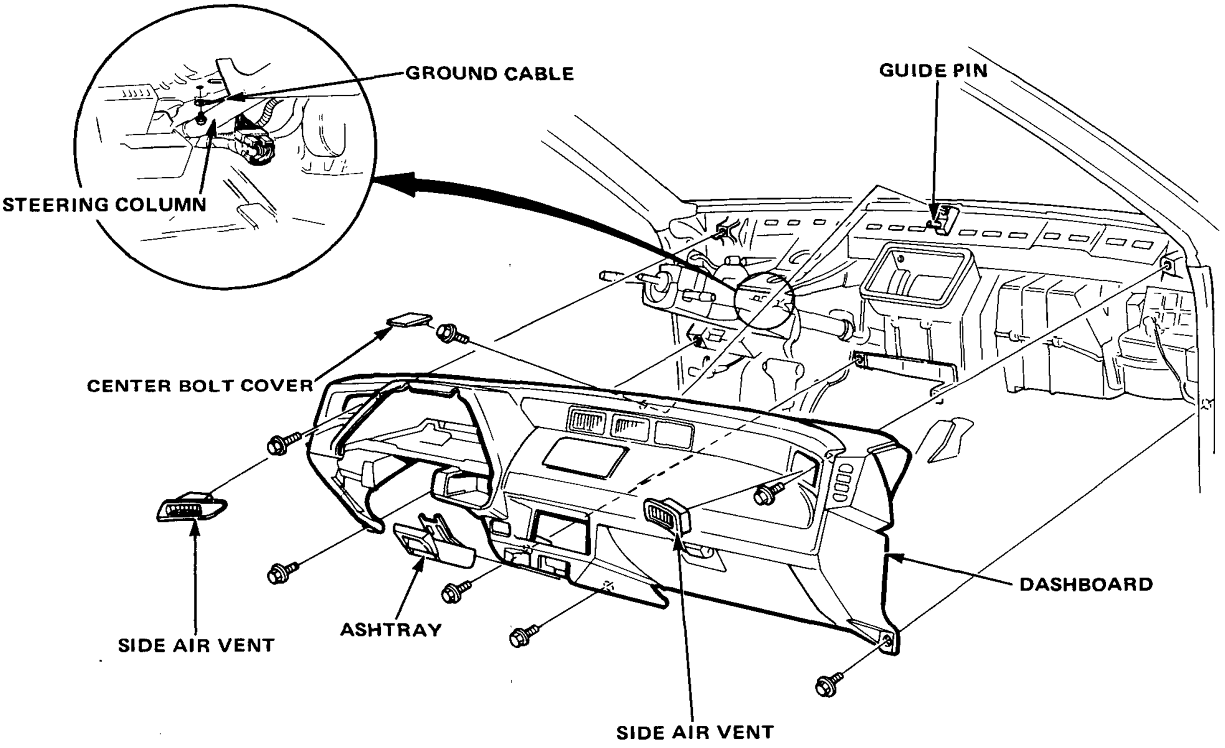
   - Steering wheel and column lower cover (pages 19-11 and 17).
   - Instrument panel.
   - Right and left air vents.
   - Center bolt cover.
   - Ashtray

2. Disconnect the ground and antenna cables from under the dashboard.

3. Disconnect the intsrument wire harness from the fuse box. (See page 22-112 for connector locations.)

4. Remove the 9 dashboard mounting bolts.

5. Lift the dashboard as you pull so it will slide up and off the guide pin at the middle; hold it from underneath so it won't fall when it comes off the pin.


GROUND CABLE
GUIDE PIN
STEERING COLUMN
CENTER BOLT COVER
DASHBOARD
SIDE AIR VENT
ASHTRAY
SIDE AIR VENT

6. Install the dashboard in the reverse order of removal. Tighten the bolts gradually, in an alternating pattern, checking for dashboard fit and wire clearance.

CAUTION:

- **Make sure the dashboard fits onto the guide pin correctly.**
- **Before tightening the dashboard bolts, make sure the instrument wire harness is not pinched.**

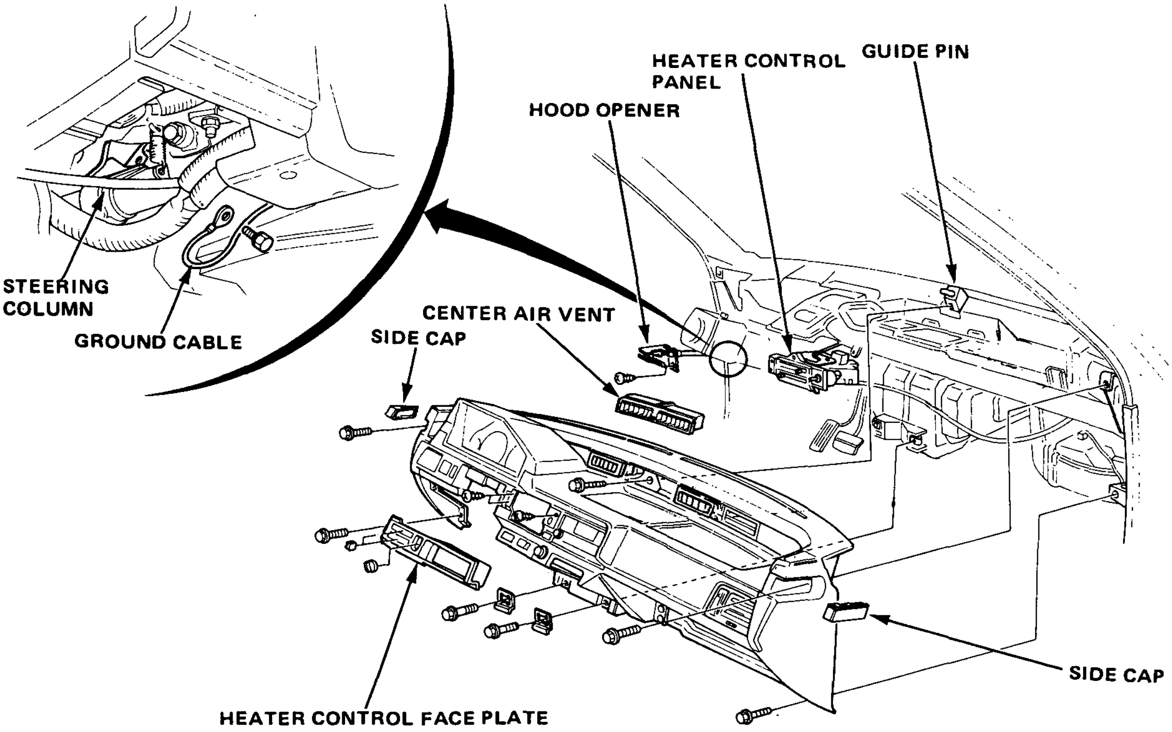
– (2D H/B, 4D, and 4D H/B)

1. To remove the dashboard, first remove the:

   - Steering wheel (pages 19-11 and 17).
   - Hood opener.
   - Right and left side caps.
   - Right and left side defroster garnish (4D H/B)
   - Center air outlet (2D H/B and 4D).
   - Clock (4D H/B).
   - Ashtray.

2. Remove the dashboard lower panel, then disconnect the ground and speedometer cables from under the dashboard.
3. Remove the glove box (2D H/B and 4D) or the dashboard under dray (4D H/B), then disconnect the antenna cable.
4. Remove the choke cable from the dashboard panel, disconnect its wire harness.
5. Remove the heater control face plate and the 3 screws attaching the heater control panel to the dashboard.
6. Disconnect the instrument wire harness from the fuse box. (See page 22-112 for connector locations.)
7. Remove the dashboard mounting bolts.
8. Lift the dashboard as you pull so it will slide up and off the guide pin at the middle; hold it from underneath so it won't fall when it comes off the pin.

2D H/B and 4D:

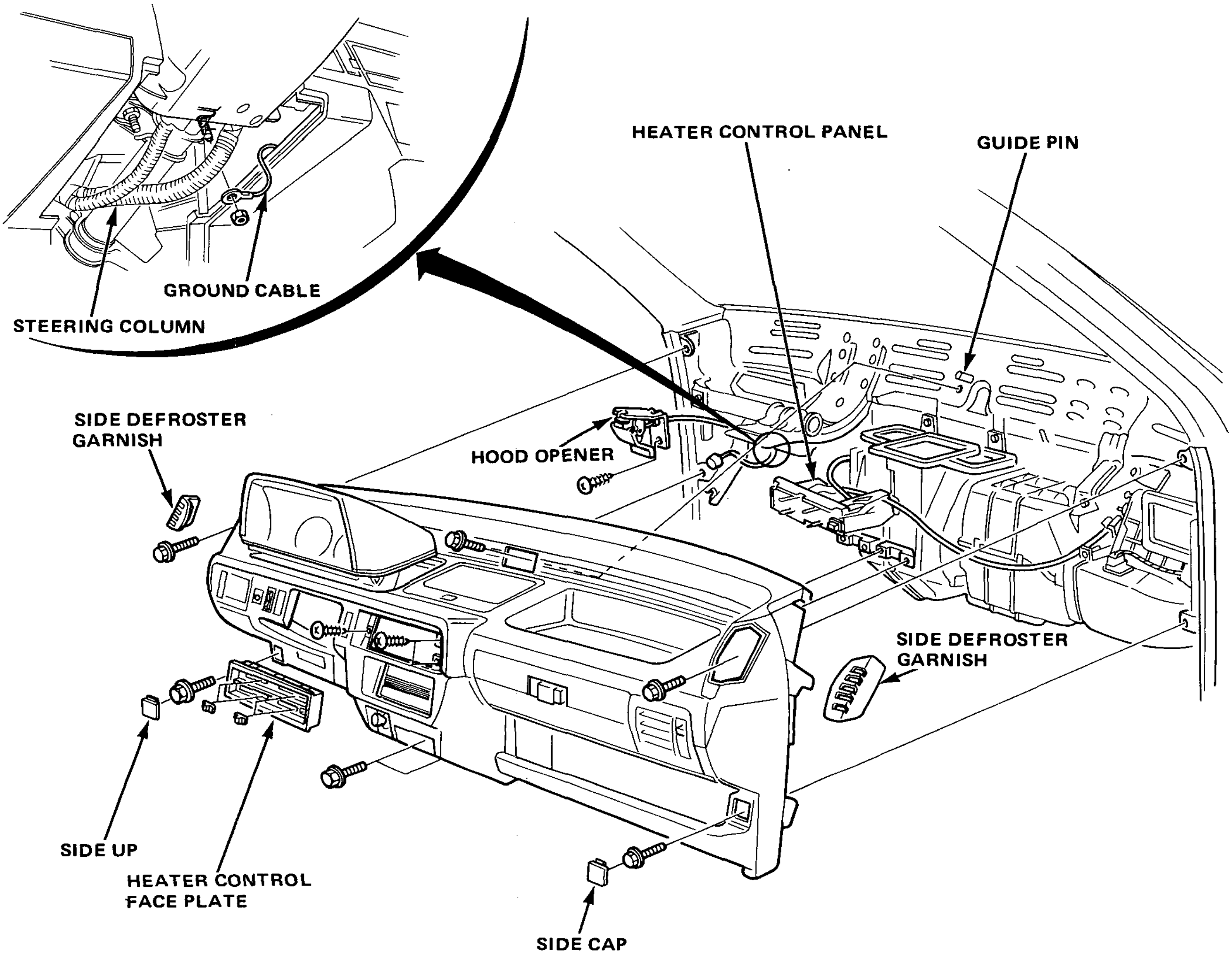

HEATER CONTROL PANEL
GUIDE PIN
HOOD OPENER
STEERING COLUMN
CENTER AIR VENT
SIDE CAP
GROUND CABLE
SIDE CAP
HEATER CONTROL FACE PLATE

(cont'd)

Dashboard

Replacement (2D H/B, 4D, and 4D H/B Cont'd)

4D H/B:



GROUND CABLE
STEERING COLUMN
HEATER CONTROL PANEL
GUIDE PIN
SIDE DEFROSTER GARNISH
HOOD OPENER
SIDE DEFROSTER GARNISH
SIDE UP
HEATER CONTROL FACE PLATE
SIDE CAP

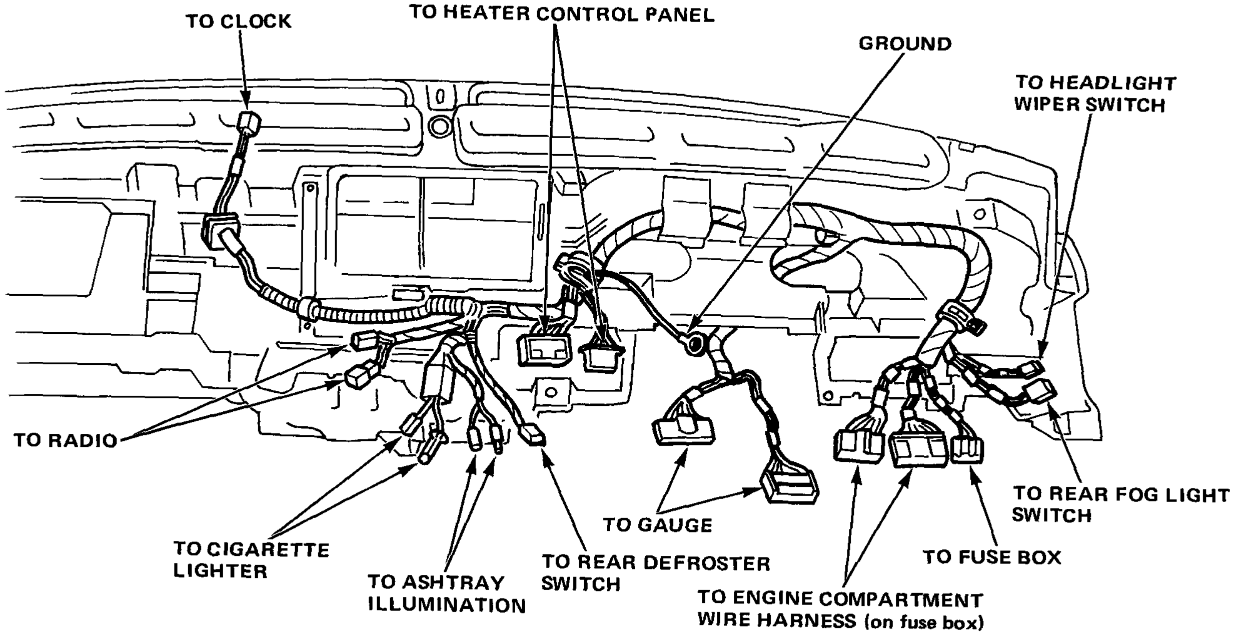
9. Install the dashboard in the reverse order of removal. Tighten the bolts gradually, in an alternating pattern, checking for dashboard fit and wire clearance.

CAUTION:

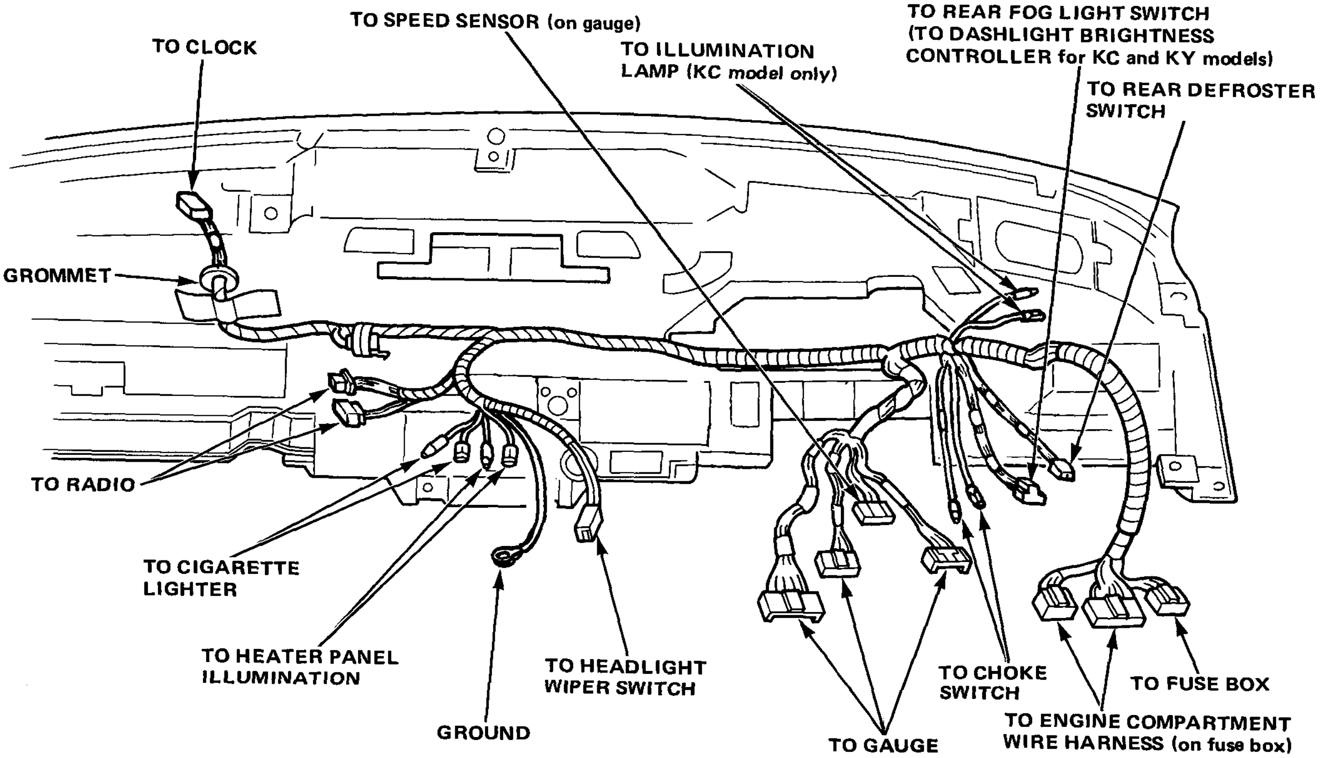
- **Make sure the dashboard fits onto the guide pin correctly.**
- **Before tightening the dashboard bolts, make sure the instrument wire harness is not pinched.**

Wire Harness Connections (Coupe, 2D H/B, and 4D)

Coupe:

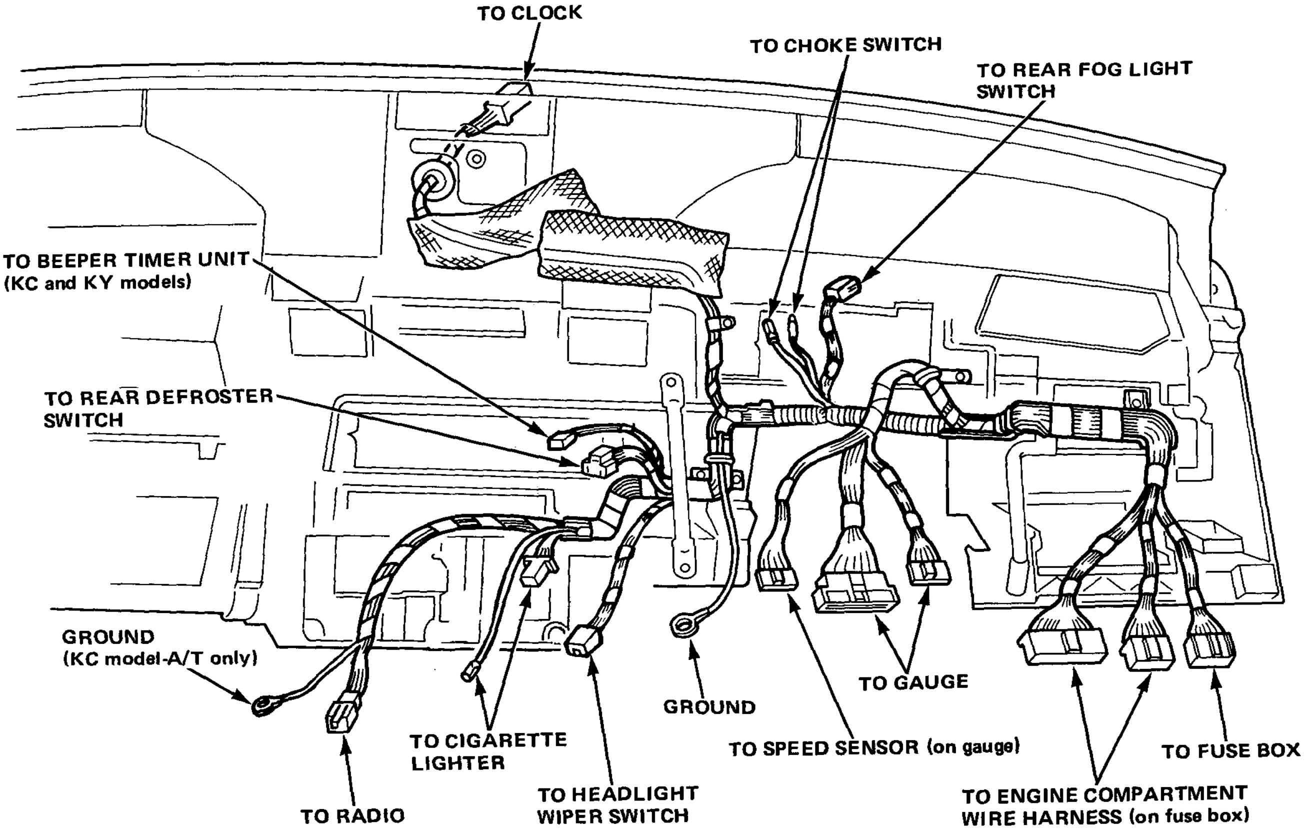

TO CLOCK
TO HEATER CONTROL PANEL
GROUND
TO HEADLIGHT WIPER SWITCH
TO RADIO
TO GAUGE
TO REAR FOG LIGHT SWITCH
TO CIGARETTE LIGHTER
TO ASHTRAY ILLUMINATION
TO REAR DEFROSTER SWITCH
TO FUSE BOX
TO ENGINE COMPARTMENT WIRE HARNESS (on fuse box)

2D H/B and 4D:


TO SPEED SENSOR (on gauge)
TO REAR FOG LIGHT SWITCH (TO DASHLIGHT BRIGHTNESS CONTROLLER for KC and KY models)
TO CLOCK
TO ILLUMINATION LAMP (KC model only)
TO REAR DEFROSTER SWITCH
GROMMET
TO RADIO
TO CIGARETTE LIGHTER
TO HEATER PANEL ILLUMINATION
TO HEADLIGHT WIPER SWITCH
TO CHOKE SWITCH
TO FUSE BOX
TO ENGINE COMPARTMENT WIRE HARNESS (on fuse box)
GROUND
TO GAUGE

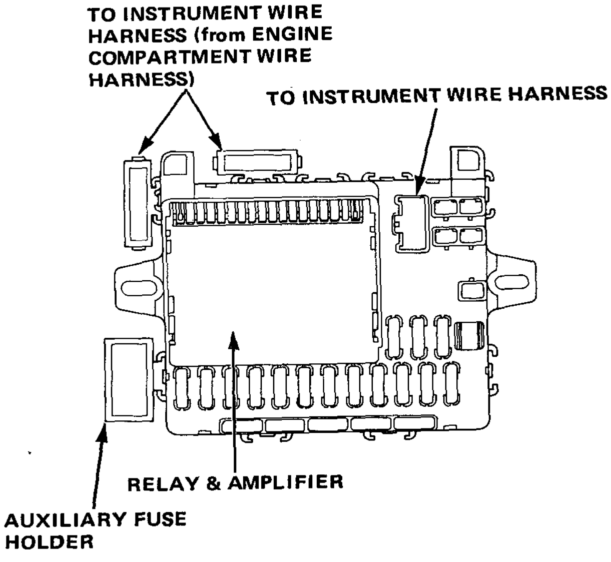
Instrument Panel/Dashboard Wiring

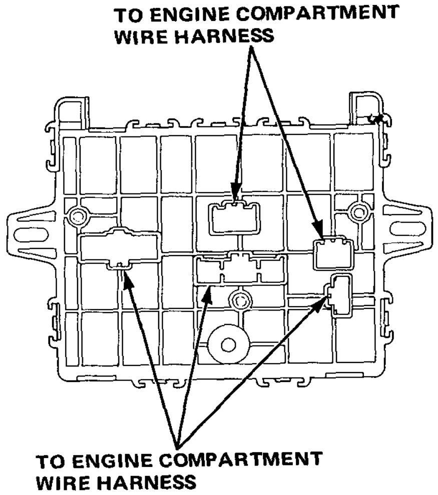
Wire Harness Connections (4D H/B)


TO CLOCK
TO CHOKE SWITCH
TO REAR FOG LIGHT SWITCH
TO BEEPER TIMER UNIT (KC and KY models)
TO REAR DEFROSTER SWITCH
GROUND (KC model-A/T only)
TO GAUGE
GROUND
TO CIGARETTE LIGHTER
TO SPEED SENSOR (on gauge)
TO FUSE BOX
TO RADIO
TO HEADLIGHT WIPER SWITCH
TO ENGINE COMPARTMENT WIRE HARNESS (on fuse box)

Fuse Box

NOTE: When servicing the engine compartment wire harness, note the locations of the harness couplers on the fuse box.


TO INSTRUMENT WIRE HARNESS (from ENGINE COMPARTMENT WIRE HARNESS)
TO INSTRUMENT WIRE HARNESS
RELAY & AMPLIFIER
AUXILIARY FUSE HOLDER

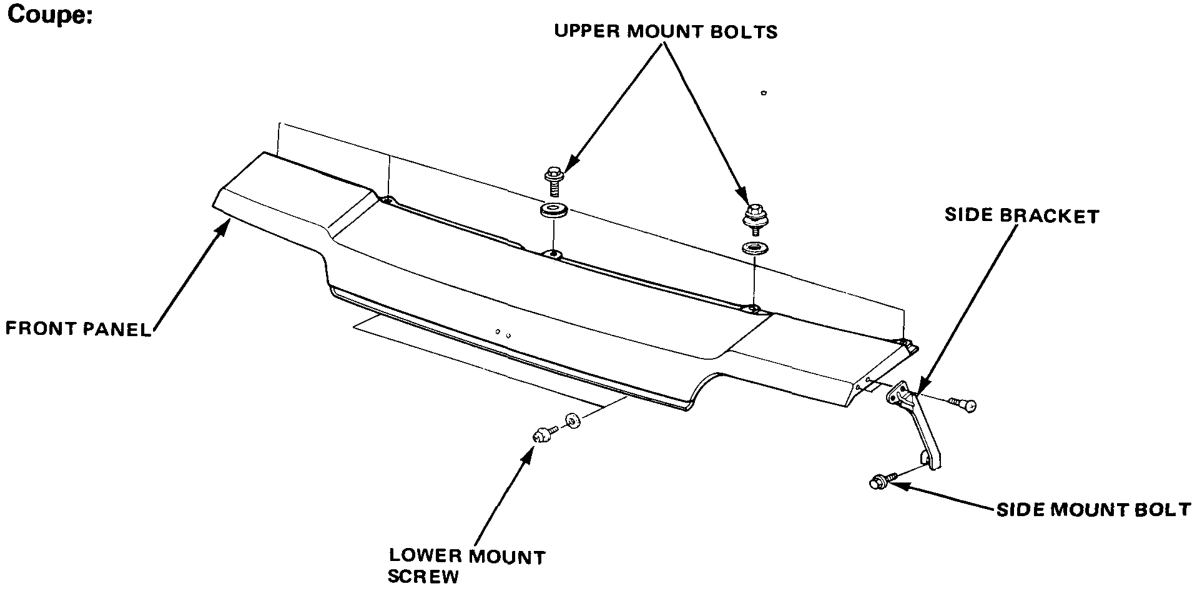

TO ENGINE COMPARTMENT WIRE HARNESS
TO ENGINE COMPARTMENT WIRE HARNESS

Front Grille Area

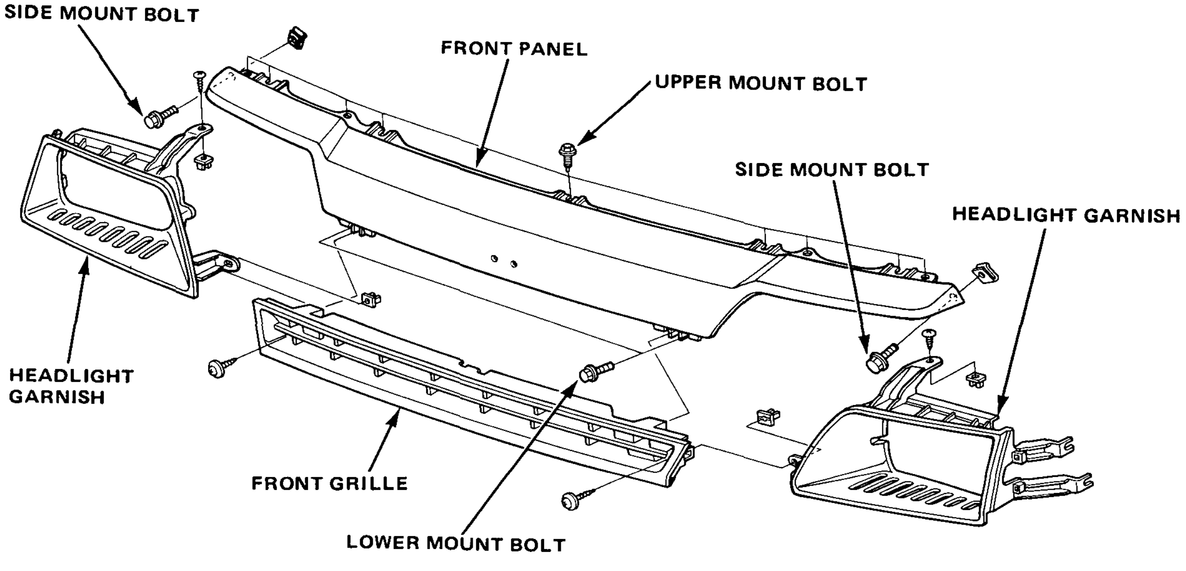
Replacement

1. Remove the 2 screws and the front grille (All except Coupe).
2. Remove the right and left front position lights.
3. Remove the screws and the headlight garnish (Canadian model only).
4. Remove the lower and side mount bolts, then remove the front panel by removing the upper bolts.

Coupe:


UPPER MOUNT BOLTS
SIDE BRACKET
FRONT PANEL
SIDE MOUNT BOLT
LOWER MOUNT SCREW

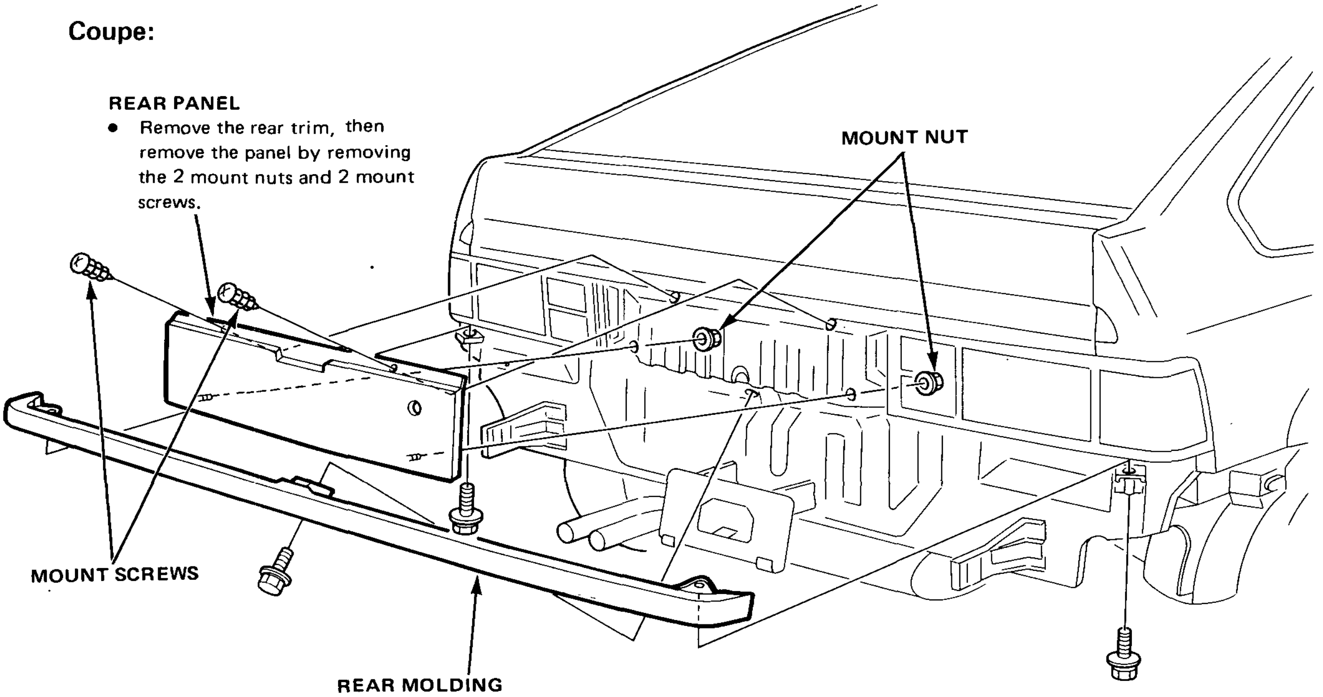
2D H/B, 4D, and 4D H/B:


SIDE MOUNT BOLT
FRONT PANEL
UPPER MOUNT BOLT
SIDE MOUNT BOLT
HEADLIGHT GARNISH
HEADLIGHT GARNISH
FRONT GRILLE
LOWER MOUNT BOLT

Rear Panels

Replacement

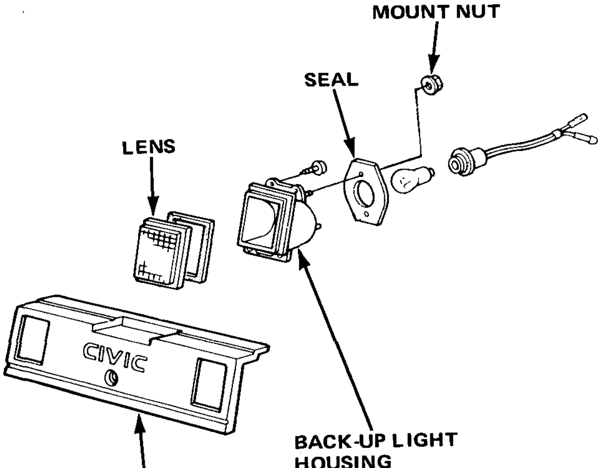
Coupe:


MOUNT NUT
MOUNT SCREWS

REAR PANEL
- Remove the rear trim, then remove the panel by removing the 2 mount nuts and 2 mount screws.

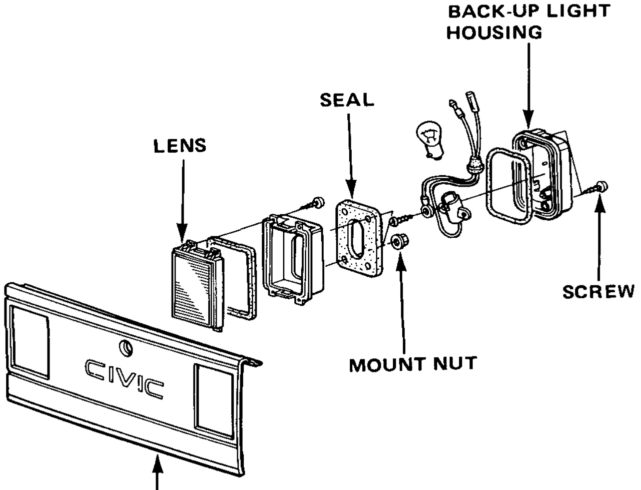
REAR MOLDING
- Remove the rear bumper, then remove the molding by removing the 3 mount bolts.

2D H/B:


MOUNT NUT
SEAL
LENS
BACK-UP LIGHT HOUSING
CIVIC

REAR PANEL
- Remove the rear trim, then remove the panel by removing the 4 mount nuts.

4D:

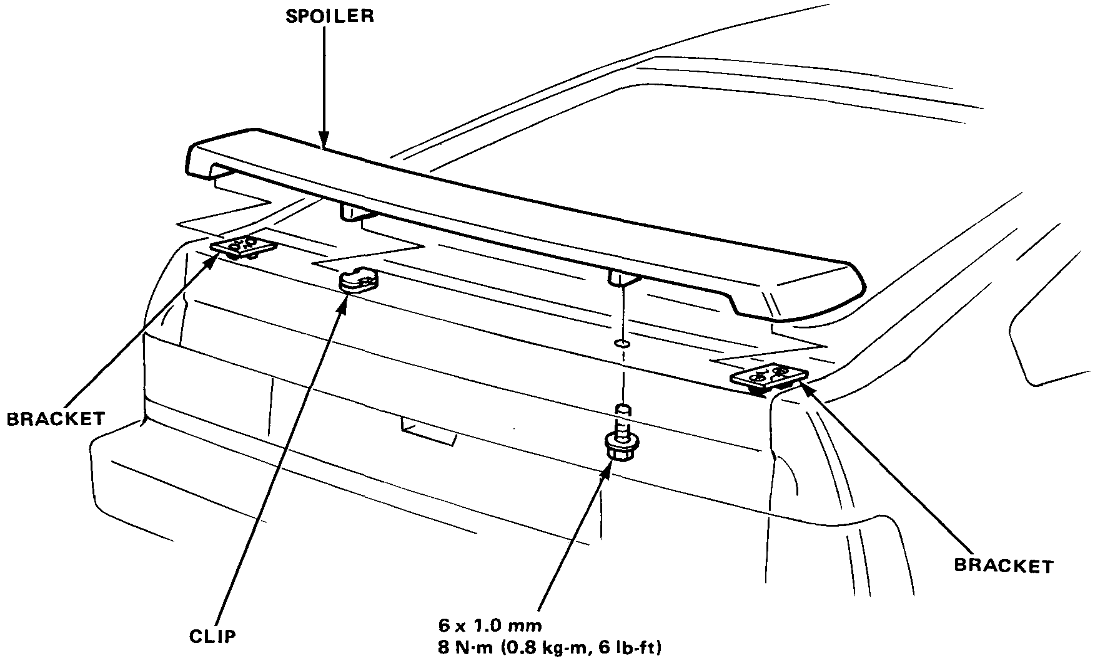

BACK-UP LIGHT HOUSING
SEAL
LENS
SCREW
MOUNT NUT
CIVIC

REAR PANEL
- Remove the screws and the back-up light housings, then remove the panel by removing the 4 mount nuts.

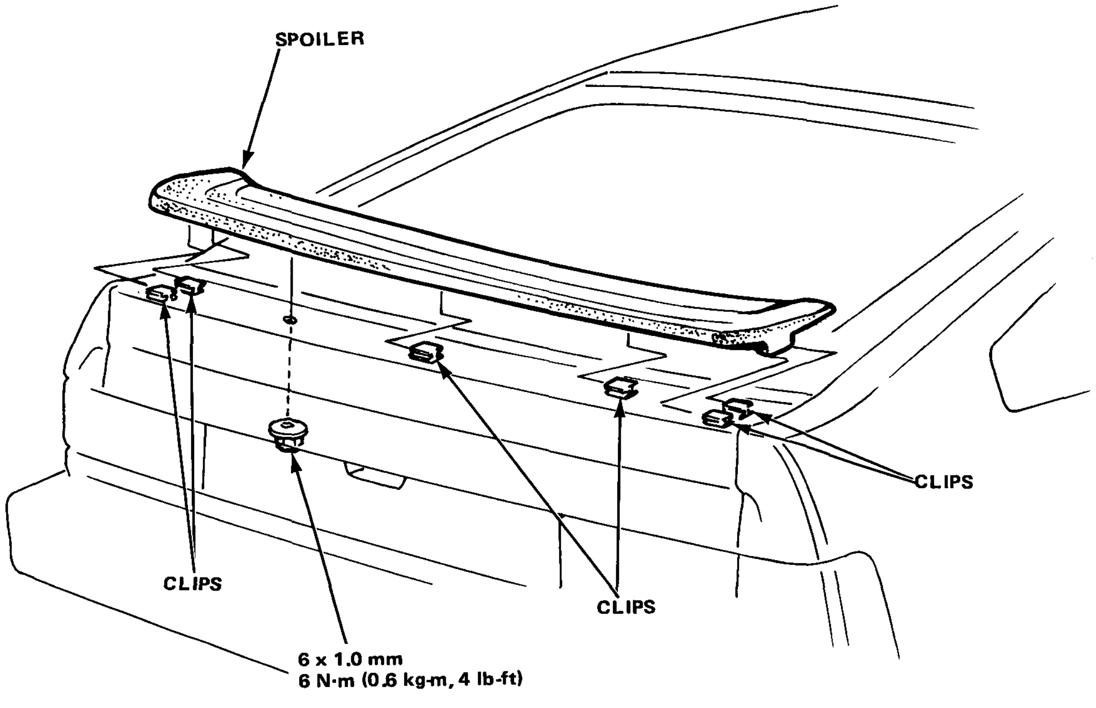
Rear Spoiler

Replacement (Coupe)

Canadian model:


SPOILER
BRACKET
CLIP
6 x 1.0 mm
8 N·m (0.8 kg-m, 6 lb-ft)
BRACKET

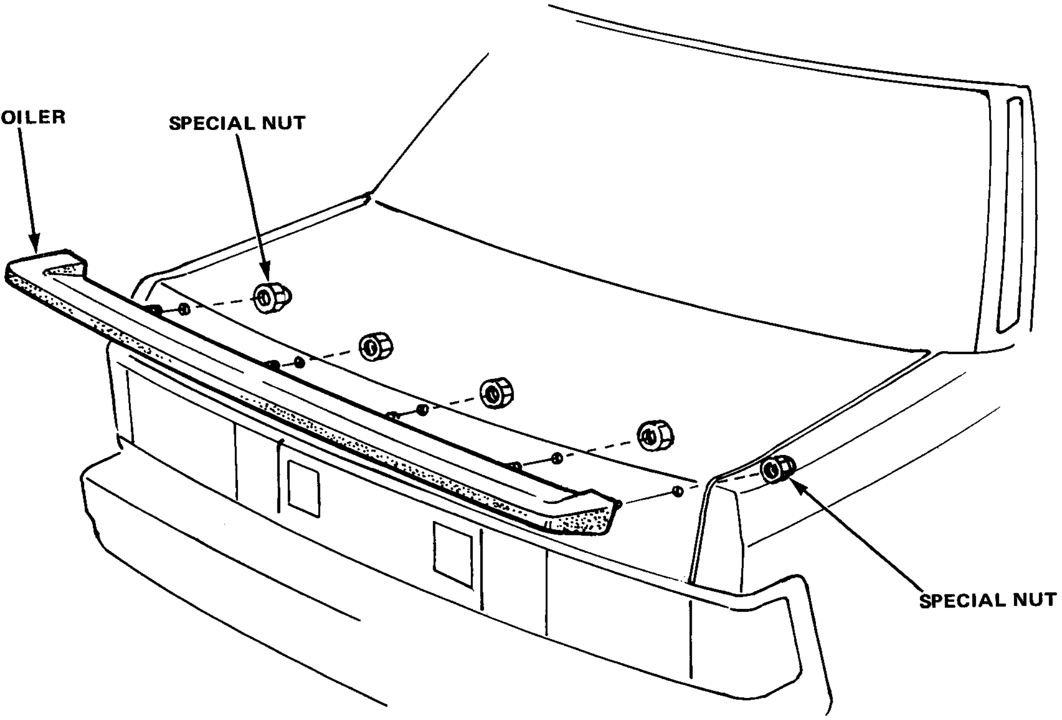
European model:


SPOILER
CLIPS
CLIPS
CLIPS
6 x 1.0 mm
6 N·m (0.6 kg-m, 4 lb-ft)

Rear Spoiler

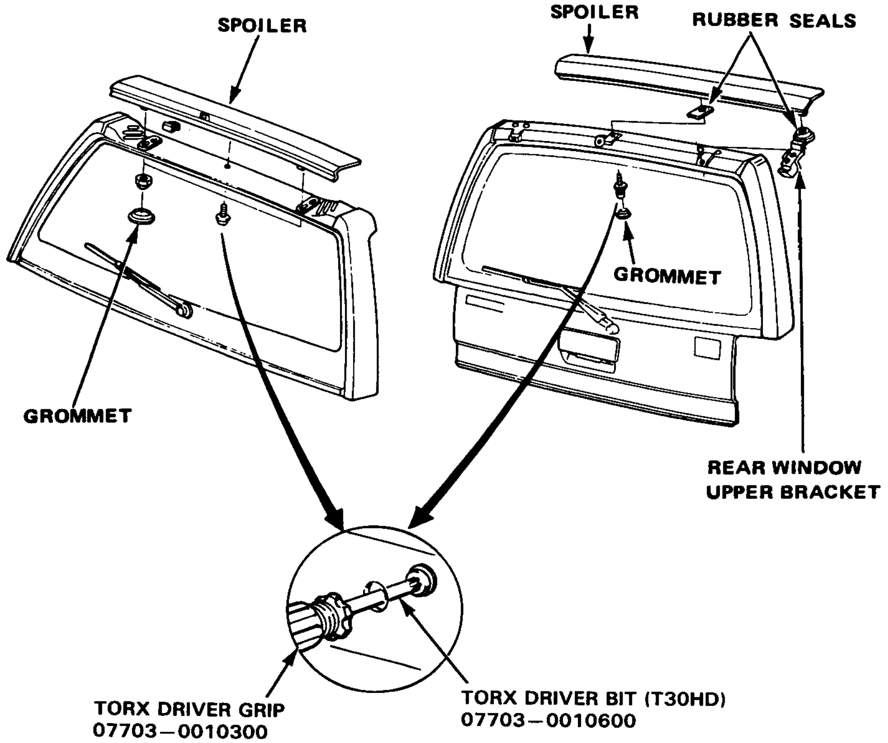
Replacement (2D H/B, 4D, and 4D H/B)

4D:


SPOILER
SPECIAL NUT
SPECIAL NUT

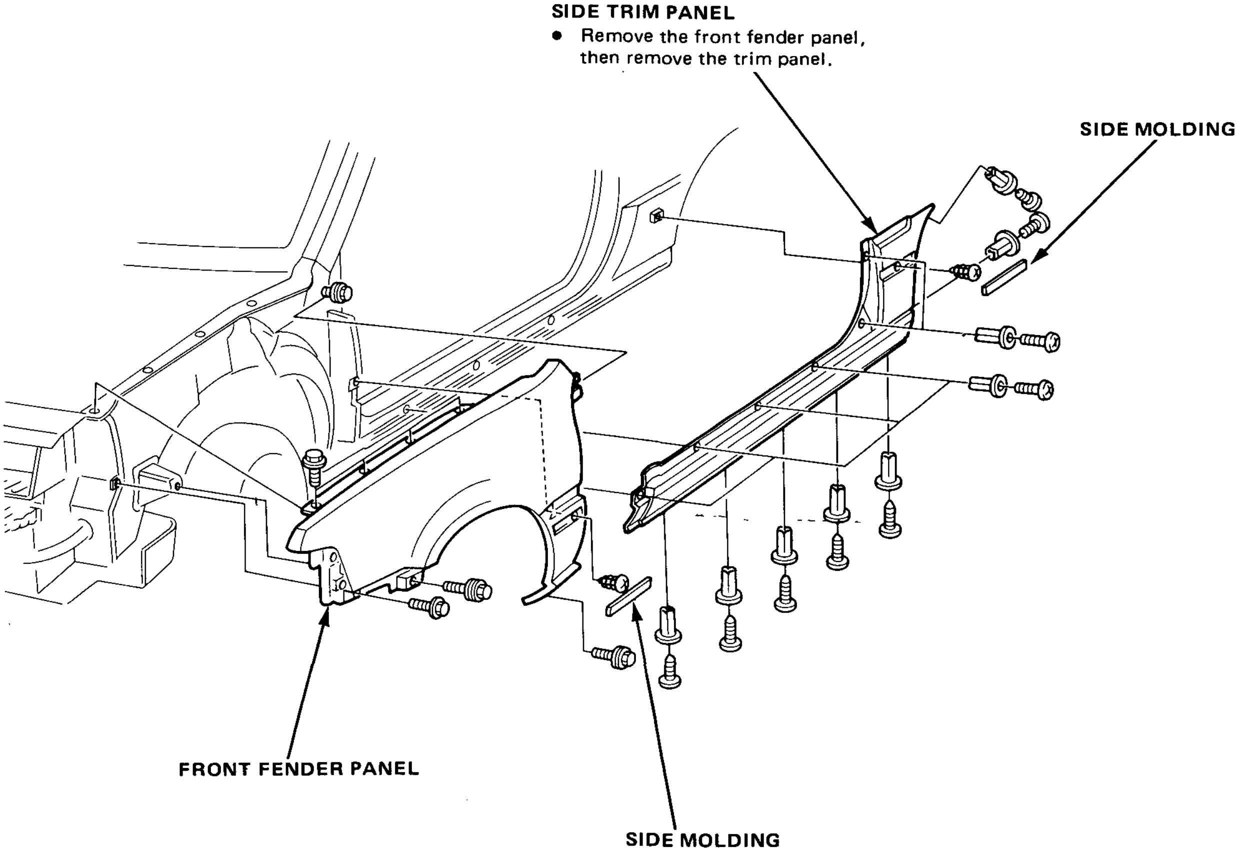
2D H/B:

4D H/B:


SPOILER
GROMMET
SPOILER
RUBBER SEALS
GROMMET
REAR WINDOW
UPPER BRACKET
TORX DRIVER GRIP
07703–0010300
TORX DRIVER BIT (T30HD)
07703–0010600

Side Panels

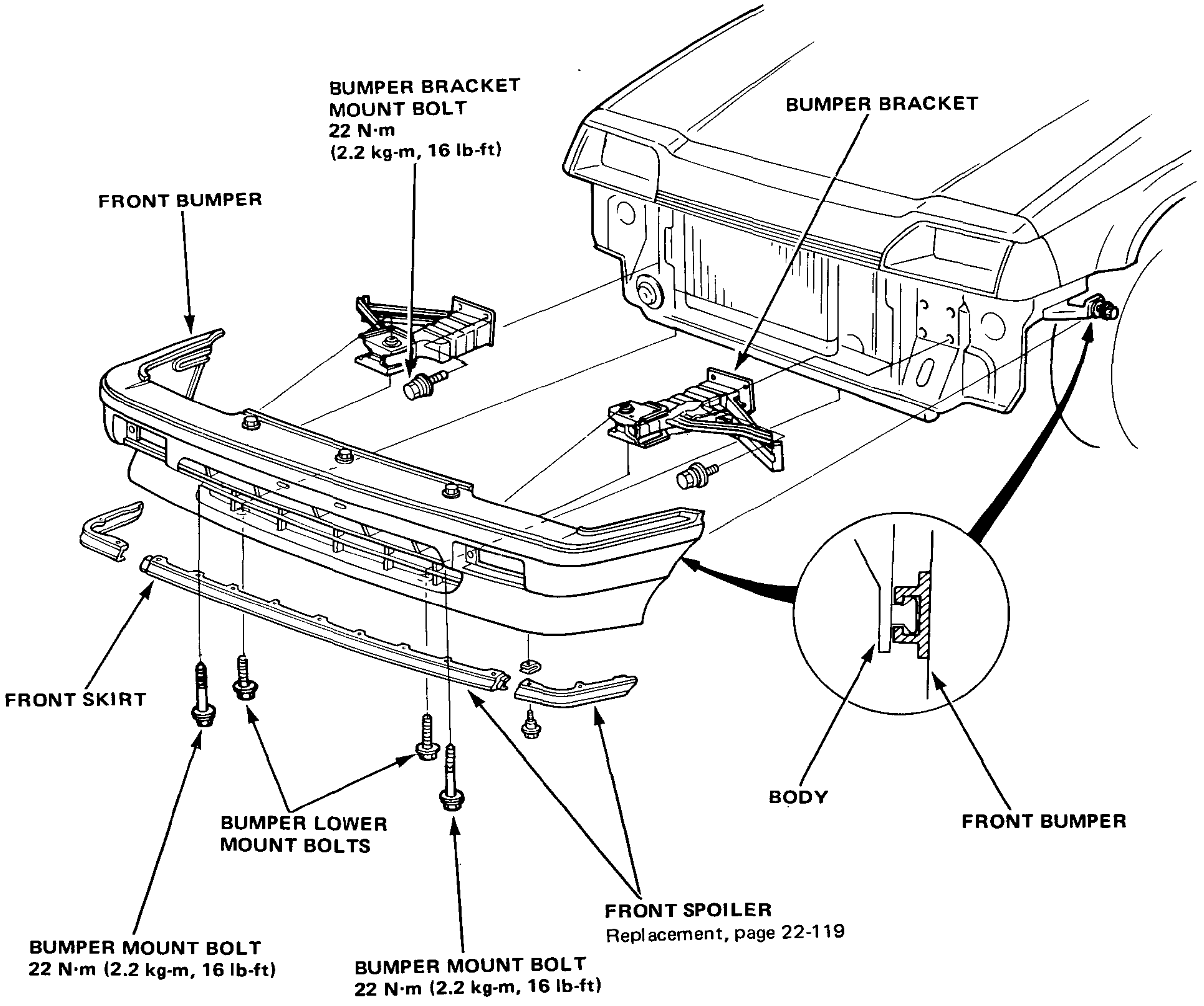
Replacement (Coupe only)


SIDE TRIM PANEL
- Remove the front fender panel, then remove the trim panel.
SIDE MOLDING
FRONT FENDER PANEL
SIDE MOLDING

Front Bumper

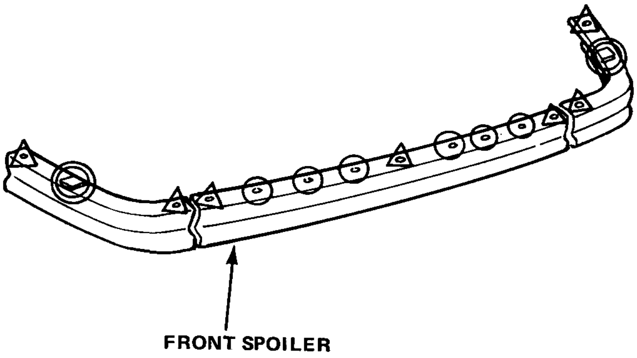
Replacement

1. Remove the front turn lights, then disconnect the wire connectors.
2. Remove the bumper lower mount bolts and the bumper mount bolts.
3. Remove the bumper by sliding it to the front.

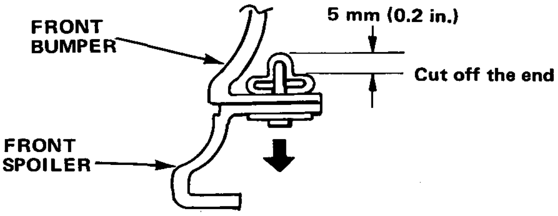

BUMPER BRACKET MOUNT BOLT
22 N·m
(2.2 kg-m, 16 lb-ft)
BUMPER BRACKET
FRONT BUMPER
FRONT SKIRT
BODY
FRONT BUMPER
BUMPER LOWER MOUNT BOLTS
FRONT SPOILER
Replacement, page 22-119
BUMPER MOUNT BOLT
22 N·m (2.2 kg-m, 16 lb-ft)
BUMPER MOUNT BOLT
22 N·m (2.2 kg-m, 16 lb-ft)

Front Spoiler Replacement

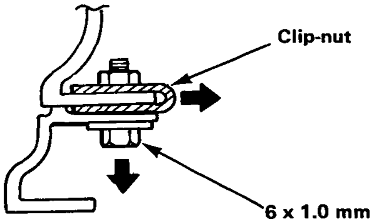
1. Remove the front spoiler by removing the 2 sus-clips and the 7 mount bolts, and cutting off the end of the 6 plastic rivets.


FRONT SPOILER

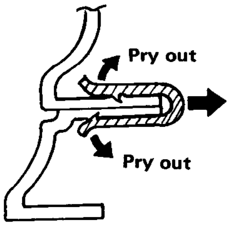
○ : **Plastic rivet locations**


FRONT BUMPER
5 mm (0.2 in.)
Cut off the end
FRONT SPOILER

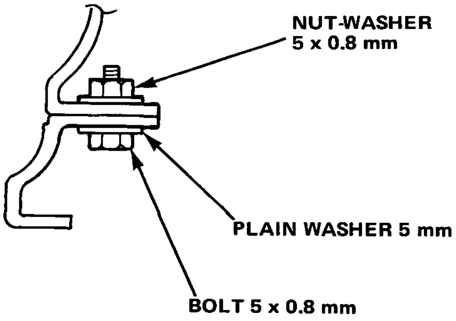
△ : **Mount bolt locations**


Clip-nut
6 x 1.0 mm

○ : **Sus-clip locations**


Pry out
Pry out

2. Install the front spoiler in the reverse order of removal. Use bolts and nuts at the points where plastic rivets were used to retain the spoiler as shown.

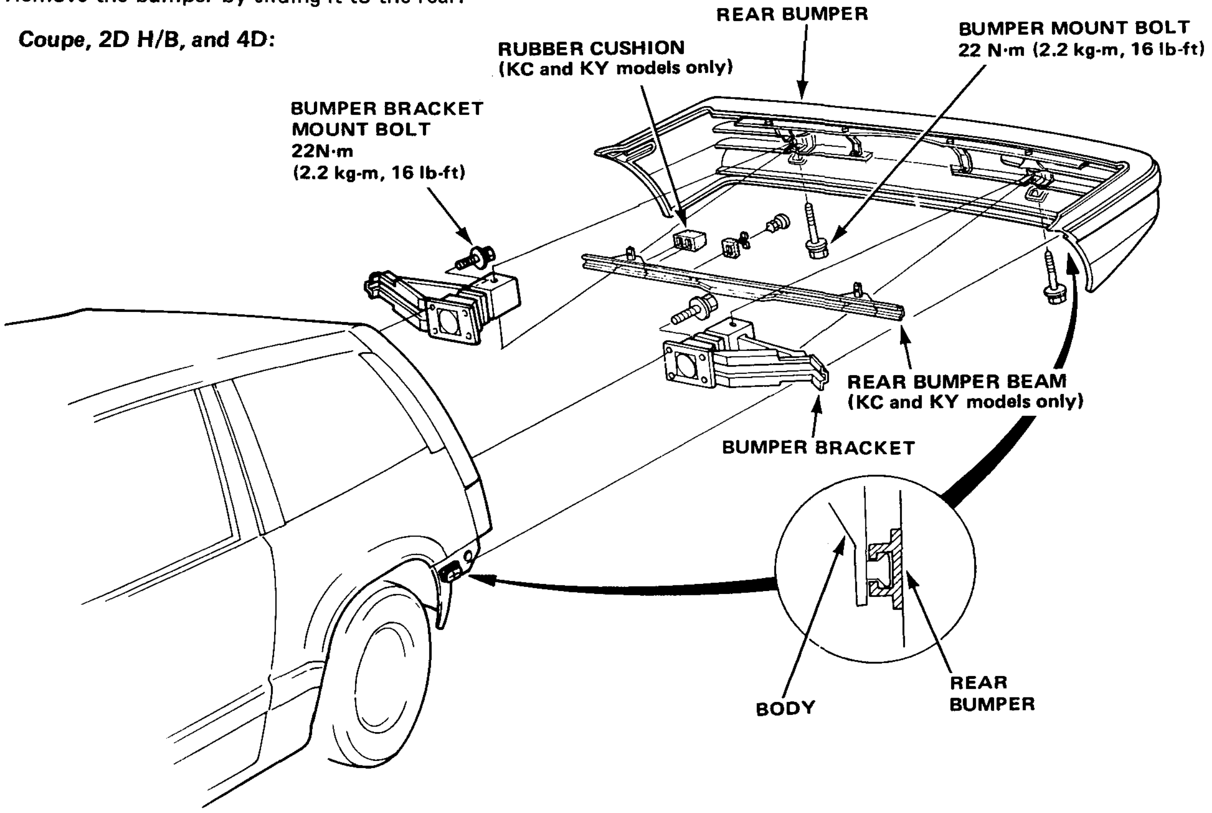

NUT-WASHER 5 x 0.8 mm
PLAIN WASHER 5 mm
BOLT 5 x 0.8 mm

Rear Bumper

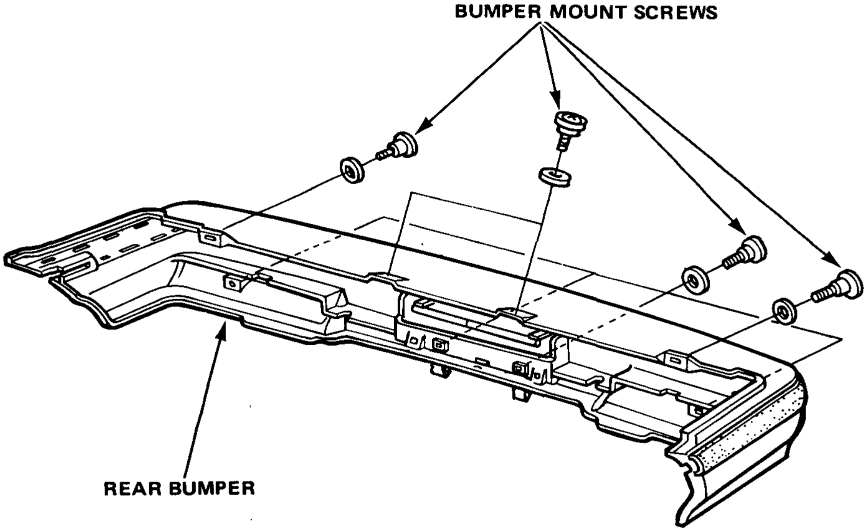
Replacement

1. Disconnect the license light wire connector.
2. For the rear fog light equiped model, remove the rear fog lights (Coupe and 4D H/B).
3. Remove the 2 bumper mount bolts (except 4D H/B) or the 8 bumper mount screws (4D H/B).
4. Remove the bumper by sliding it to the rear.

Coupe, 2D H/B, and 4D:


REAR BUMPER
RUBBER CUSHION
(KC and KY models only)
BUMPER MOUNT BOLT
22 N·m (2.2 kg-m, 16 lb-ft)
BUMPER BRACKET
MOUNT BOLT
22N·m
(2.2 kg-m, 16 lb-ft)
REAR BUMPER BEAM
(KC and KY models only)
BUMPER BRACKET
BODY
REAR
BUMPER

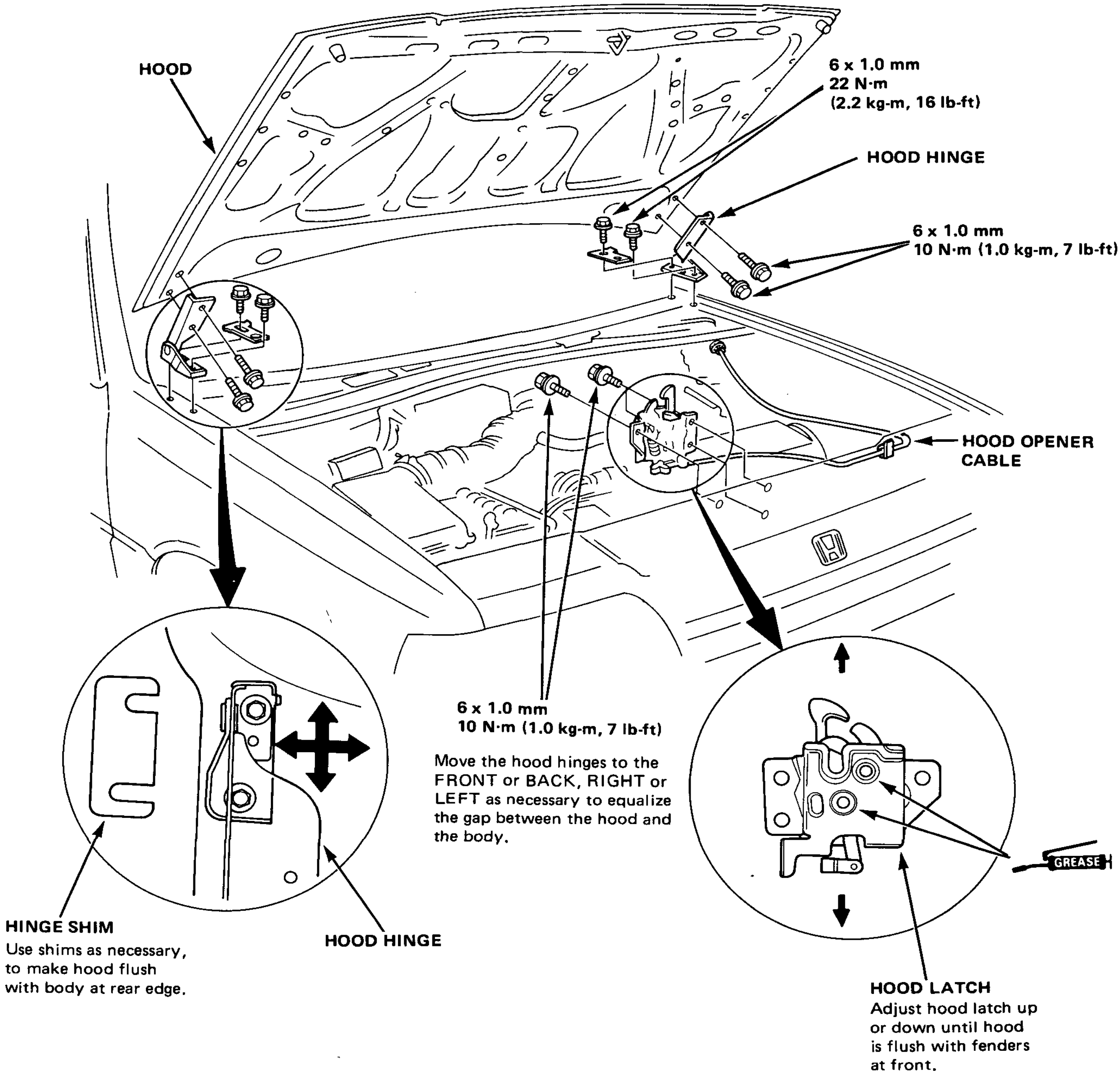
4D H/B:


BUMPER MOUNT SCREWS
REAR BUMPER

Hood

Replacement/Adjustment

1. Remove the hood by removing the hood hinge bolts.
2. When installing the hood, don't tighten the hinge bolts until you've checked the adjustments shown below.


HOOD
6 x 1.0 mm
22 N·m
(2.2 kg-m, 16 lb-ft)
HOOD HINGE
6 x 1.0 mm
10 N·m (1.0 kg-m, 7 lb-ft)
HOOD OPENER CABLE
6 x 1.0 mm
10 N·m (1.0 kg-m, 7 lb-ft)
GREASE
HINGE SHIM
HOOD HINGE
HOOD LATCH

Move the hood hinges to the FRONT or BACK, RIGHT or LEFT as necessary to equalize the gap between the hood and the body.

Use shims as necessary, to make hood flush with body at rear edge.

Adjust hood latch up or down until hood is flush with fenders at front.

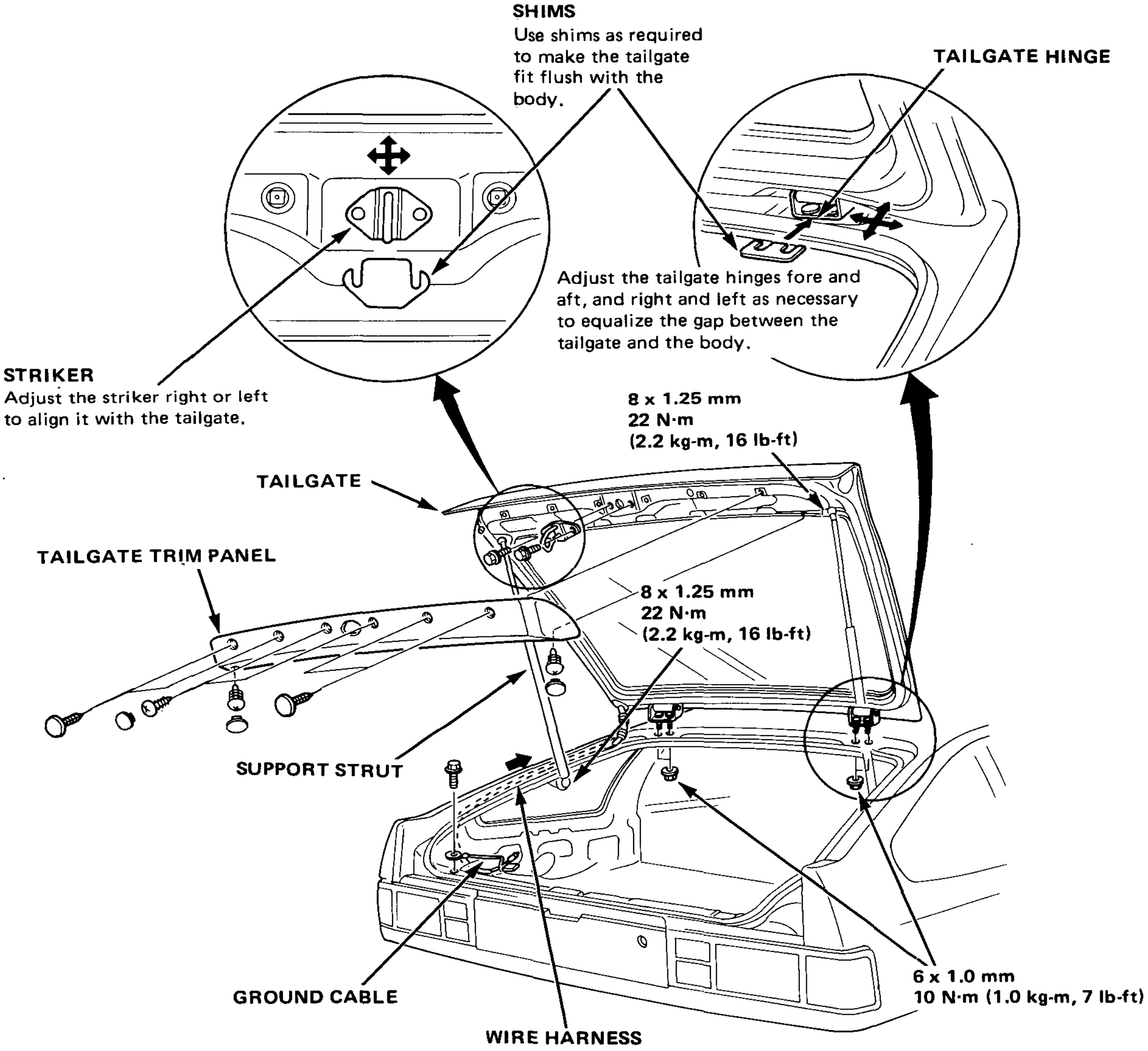
Tailgate

Replacement/Adjustment (Coupe)

1. Remove the quarter window trim and the tailgate trim panel.
2. Remove the rear trim panel, then disconnect the ground cable.
3. Pull the harness out of the body as shown.

   NOTE: Before pulling out the wire harness, tie a string to the end of it so you can pull it back in when the tailgate is reinstalled.

4. Hold the tailgate up and remove the nuts from both support strut mounts.
5. Pull down the rear edge of the headliner so it will not interfere with the mount nut removal.
6. Pry the headliner off the tailgate opening flange, remove the hinge mounting bolts and then remove the tailgate.
7. Before tightening the hinge nuts, check the adjustments shown below.

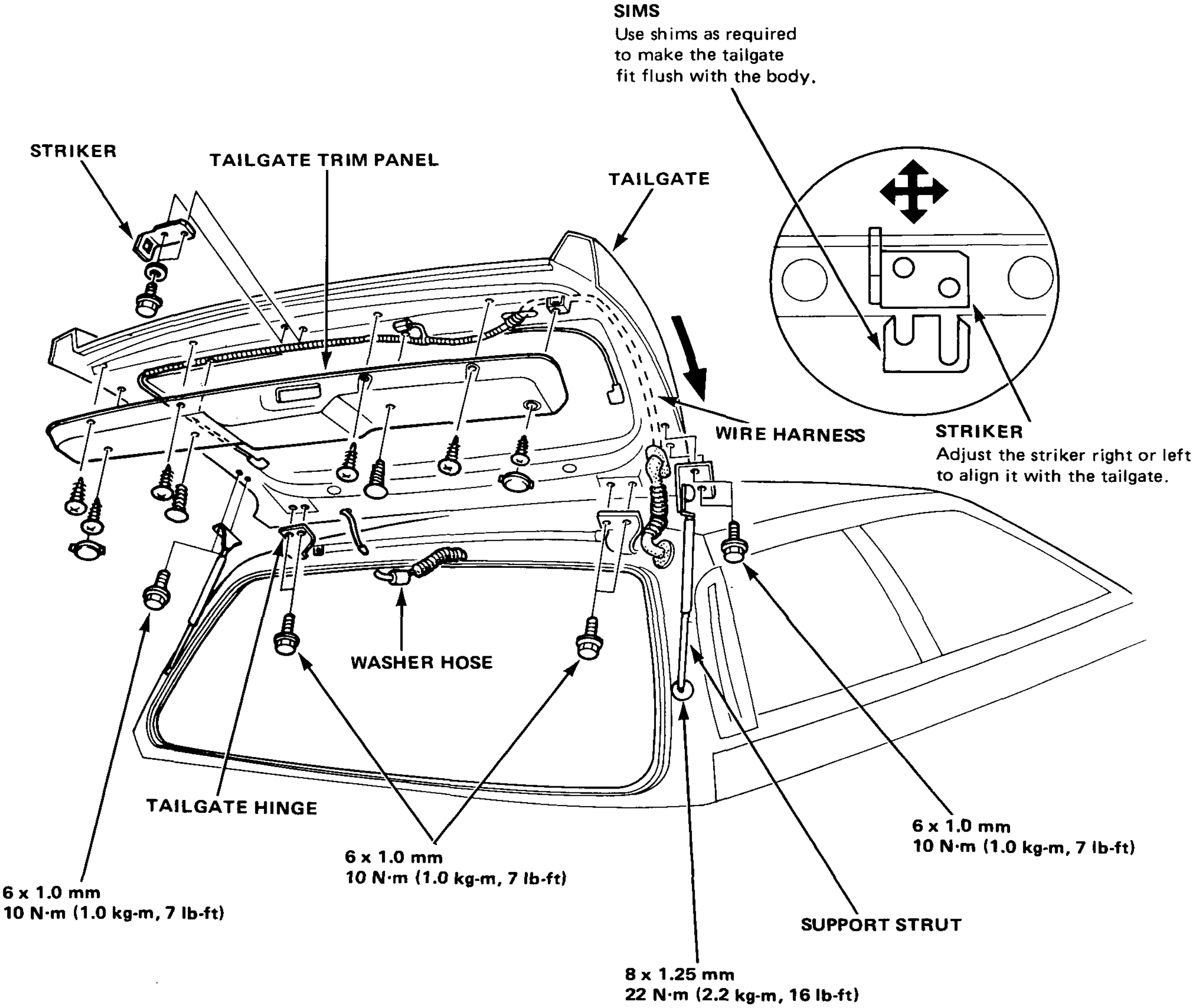


SHIMS
Use shims as required to make the tailgate fit flush with the body.
TAILGATE HINGE
Adjust the tailgate hinges fore and aft, and right and left as necessary to equalize the gap between the tailgate and the body.
STRIKER
Adjust the striker right or left to align it with the tailgate.
8 x 1.25 mm
22 N·m
(2.2 kg-m, 16 lb-ft)
TAILGATE
TAILGATE TRIM PANEL
8 x 1.25 mm
22 N·m
(2.2 kg-m, 16 lb-ft)
SUPPORT STRUT
GROUND CABLE
WIRE HARNESS
6 x 1.0 mm
10 N·m (1.0 kg-m, 7 lb-ft)

– (2D H/B and 4D H/B)

1. Remove the tailgate trim panel.
2. Disconnect the washer hose.
3. Pull the harness out of the body as shown.

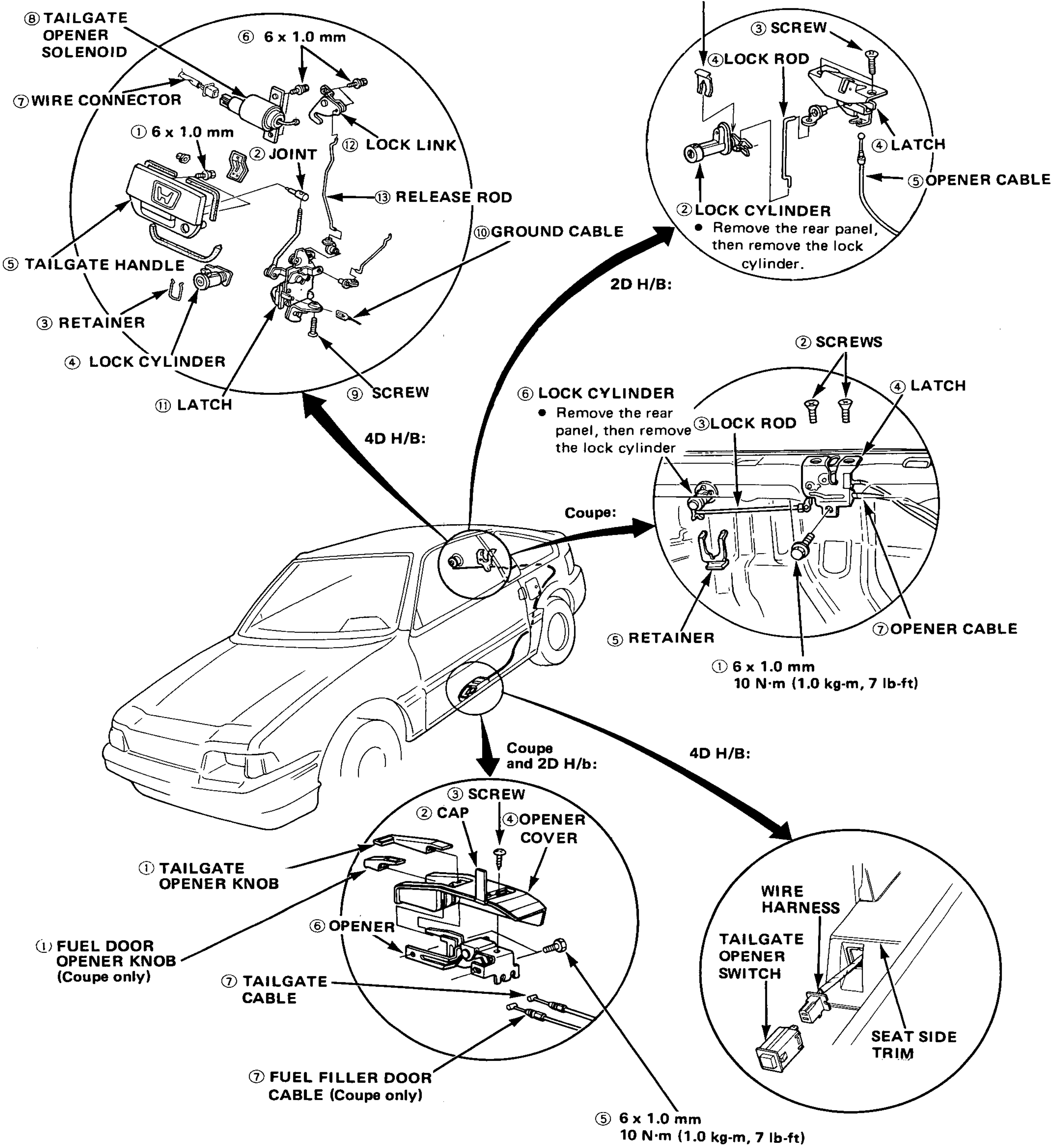
   NOTE: Before pulling out the wire harness, tie a string to the end of it so you can pull it back in when the tailgate is reinstalled.
4. Hold the tailgate up and remove the nuts from both support strut mounts.
5. Remove the tailgate mounting bolts and remove the tailgate.


SIMS
Use shims as required to make the tailgate fit flush with the body.
STRIKER
TAILGATE TRIM PANEL
TAILGATE
WIRE HARNESS
STRIKER
Adjust the striker right or left to align it with the tailgate.
WASHER HOSE
TAILGATE HINGE
6 x 1.0 mm
10 N·m (1.0 kg-m, 7 lb-ft)
6 x 1.0 mm
10 N·m (1.0 kg-m, 7 lb-ft)
6 x 1.0 mm
10 N·m (1.0 kg-m, 7 lb-ft)
SUPPORT STRUT
8 x 1.25 mm
22 N·m (2.2 kg-m, 16 lb-ft)

Tailgate

Opener and Latch Replacement

Disassemble in numbered sequence.



⑧ TAILGATE OPENER SOLENOID
⑥ 6 x 1.0 mm
⑦ WIRE CONNECTOR
① 6 x 1.0 mm
② JOINT
⑫ LOCK LINK
⑬ RELEASE ROD
⑤ TAILGATE HANDLE
⑩ GROUND CABLE
③ RETAINER
④ LOCK CYLINDER
⑨ SCREW
⑪ LATCH
4D H/B:
①RETAINER
③ SCREW
④LOCK ROD
④ LATCH
⑤OPENER CABLE
②LOCK CYLINDER
2D H/B:
② SCREWS
⑥ LOCK CYLINDER
④ LATCH
③LOCK ROD
Coupe:
⑤ RETAINER
⑦OPENER CABLE
① 6 x 1.0 mm
10 N·m (1.0 kg-m, 7 lb-ft)
Coupe and 2D H/b:
4D H/B:
③ SCREW
② CAP
④OPENER COVER
① TAILGATE OPENER KNOB
① FUEL DOOR OPENER KNOB (Coupe only)
⑥ OPENER
⑦ TAILGATE CABLE
⑦ FUEL FILLER DOOR CABLE (Coupe only)
⑤ 6 x 1.0 mm
10 N·m (1.0 kg-m, 7 lb-ft)
WIRE HARNESS
TAILGATE OPENER SWITCH
SEAT SIDE TRIM

2D H/B, ② LOCK CYLINDER:
- Remove the rear panel, then remove the lock cylinder.

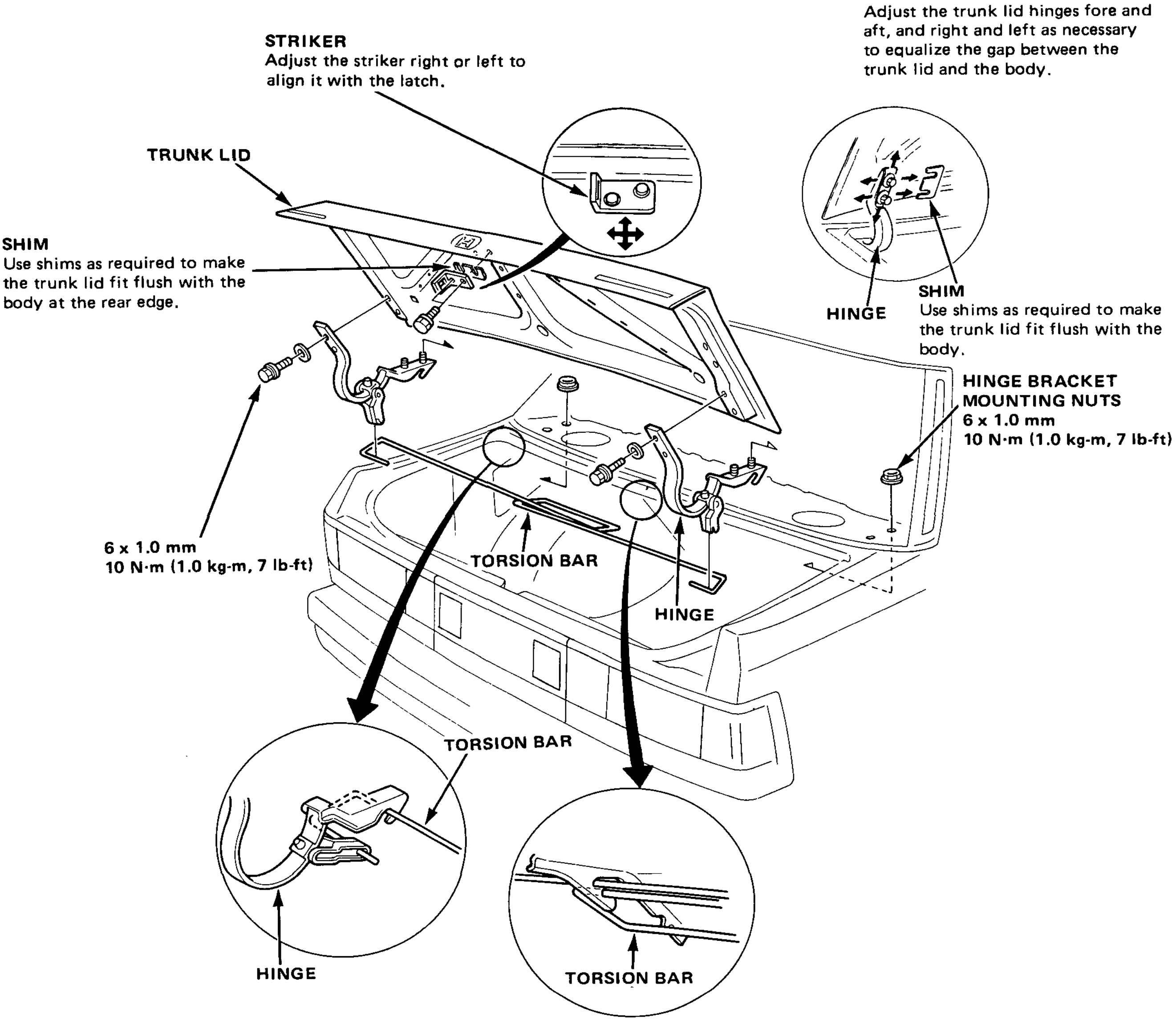
Coupe, ⑥ LOCK CYLINDER:
- Remove the rear panel, then remove the lock cylinder

Trunk Lid

Replacement/Adjustment

1. Remove the trunk lid hinge bolts, then lift off the lid.
2. Remove the torsion bars by hand.

   CAUTION: The torsion bars are under spring tension.
3. Remove the rear shelf.
4. Remove the hinge bracket mounting nuts, then remove the hinges from the trunk.
5. Before tightening the hinge bolts, check the adjustments shown below:

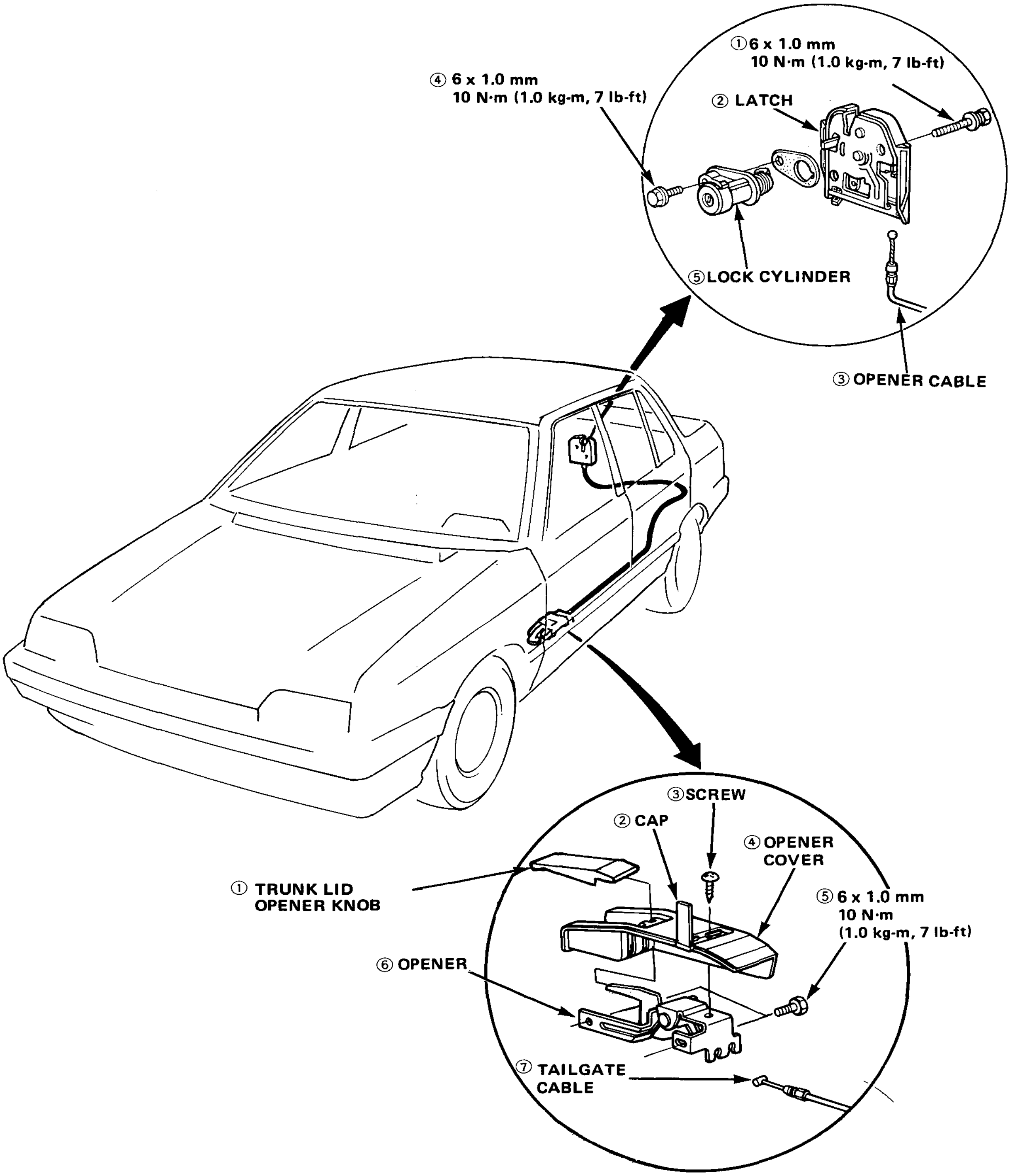


STRIKER
Adjust the striker right or left to align it with the latch.
Adjust the trunk lid hinges fore and aft, and right and left as necessary to equalize the gap between the trunk lid and the body.
TRUNK LID
SHIM
Use shims as required to make the trunk lid fit flush with the body at the rear edge.
HINGE
SHIM
Use shims as required to make the trunk lid fit flush with the body.
HINGE BRACKET MOUNTING NUTS
6 x 1.0 mm
10 N·m (1.0 kg-m, 7 lb-ft)
6 x 1.0 mm
10 N·m (1.0 kg-m, 7 lb-ft)
TORSION BAR
HINGE
TORSION BAR
HINGE
TORSION BAR

Trunk Lid

Opener and Latch Replacement

Disassemble in numbered sequence.

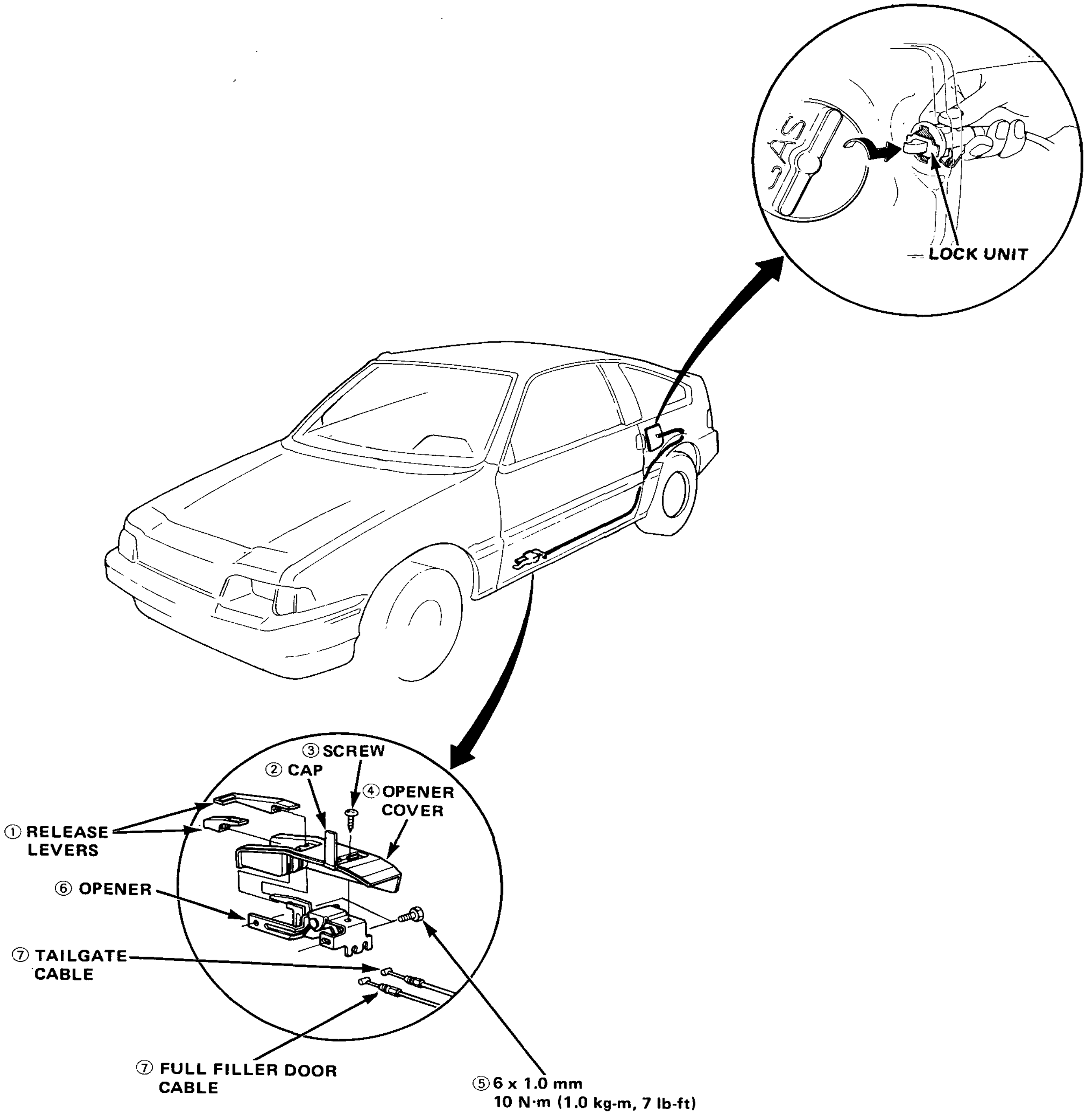


①6 x 1.0 mm
10 N·m (1.0 kg-m, 7 lb-ft)
④ 6 x 1.0 mm
10 N·m (1.0 kg-m, 7 lb-ft)
② LATCH
⑤LOCK CYLINDER
③ OPENER CABLE
③SCREW
② CAP
④ OPENER COVER
① TRUNK LID OPENER KNOB
⑤ 6 x 1.0 mm
10 N·m
(1.0 kg-m, 7 lb-ft)
⑥ OPENER
⑦ TAILGATE CABLE

Fuel Filler Door Opener

Replacement

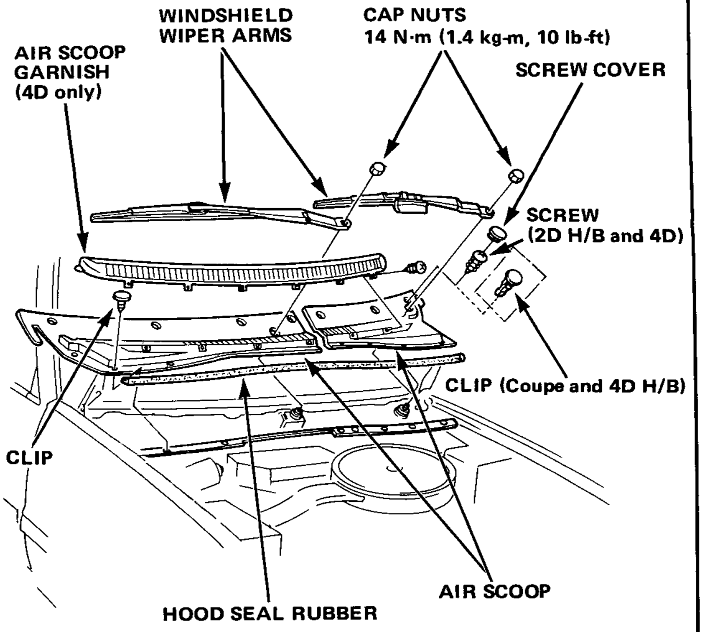
Disassemble in numbered sequence.

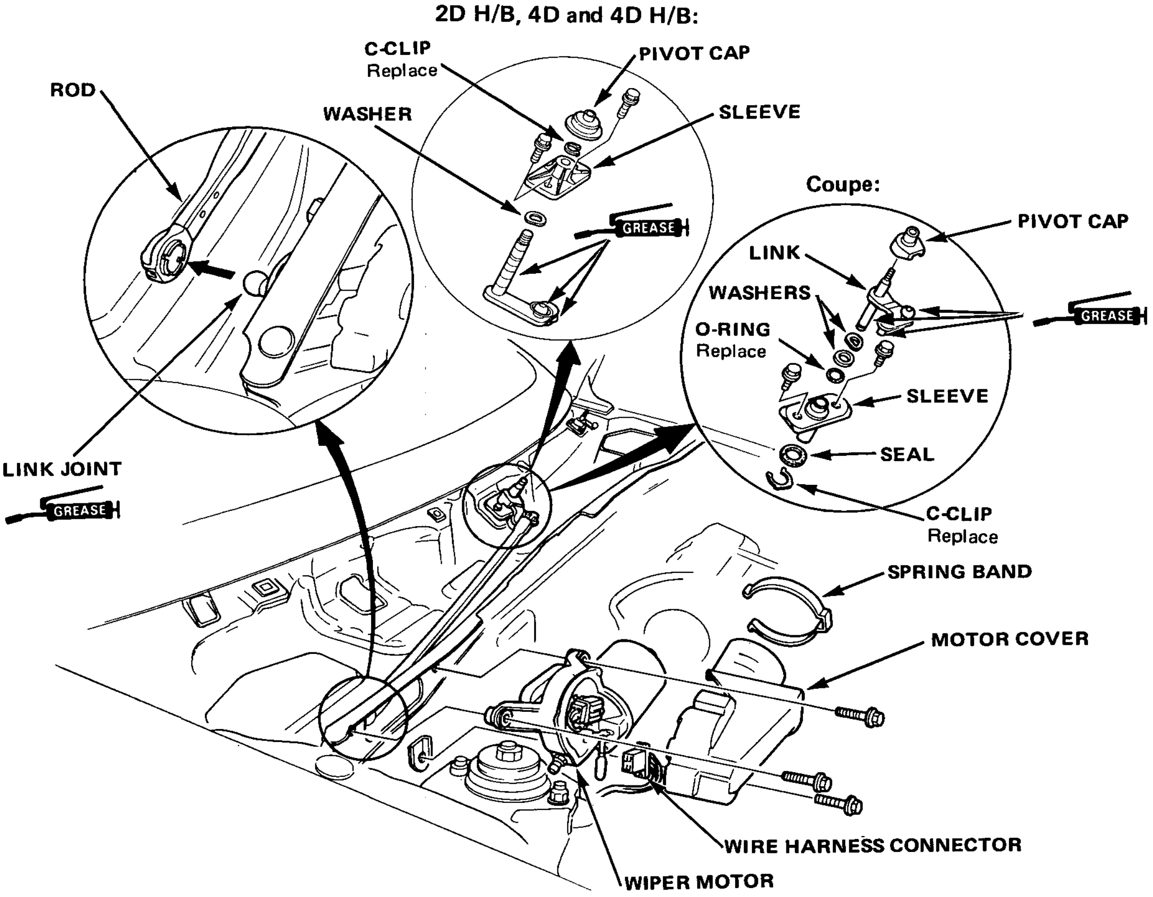

LOCK UNIT
③ SCREW
② CAP
④ OPENER COVER
① RELEASE LEVERS
⑥ OPENER
⑦ TAILGATE CABLE
⑦ FULL FILLER DOOR CABLE
⑤ 6 x 1.0 mm
10 N·m (1.0 kg-m, 7 lb-ft)

Wipers

Windshield Wiper and Motor Replacement

1. Remove the screws securing the air scoop garnish, remove the garnish (4D only).
2. Remove the nuts, raise the wiper arm and remove the wiper arms.
3. Remove the screw cover and the screws (2D H/B and 4D), and pry out the clips and remove the air scoop.
4. Disconnect the link joint to the wiper motor.
5. Remove the motor cover, and disconnect the wiper motor wire harness, then remove the motor by removing the motor mount bolts. (Wiper motor test is on page 25-9).
6. Install new wiper motor in the reverse order of removal. Coat the link joints with grease and make sure the linkage moves smoothly. (Wiper arm installation is on page 22-131).

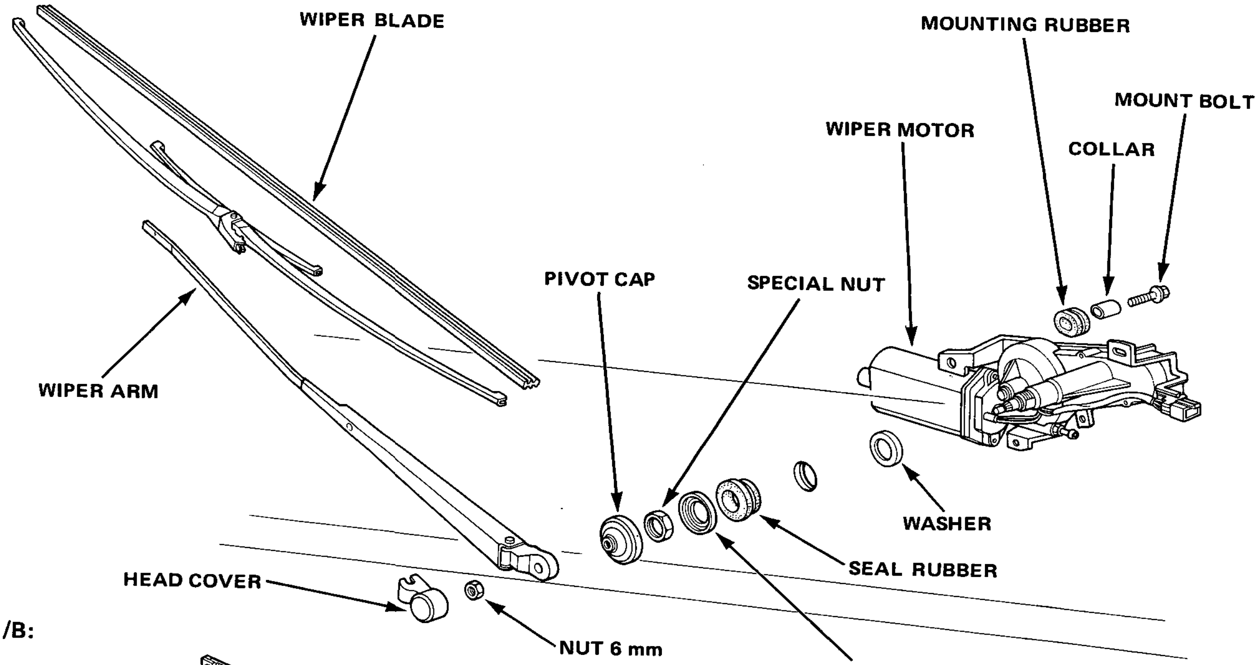

WINDSHIELD WIPER ARMS
CAP NUTS
14 N·m (1.4 kg-m, 10 lb-ft)
AIR SCOOP GARNISH (4D only)
SCREW COVER
SCREW (2D H/B and 4D)
CLIP (Coupe and 4D H/B)
CLIP
AIR SCOOP
HOOD SEAL RUBBER


2D H/B, 4D and 4D H/B:
C-CLIP
Replace
PIVOT CAP
ROD
WASHER
SLEEVE
GREASE
Coupe:
PIVOT CAP
LINK
WASHERS
GREASE
O-RING
Replace
SLEEVE
SEAL
C-CLIP
Replace
LINK JOINT
GREASE
SPRING BAND
MOTOR COVER
WIRE HARNESS CONNECTOR
WIPER MOTOR

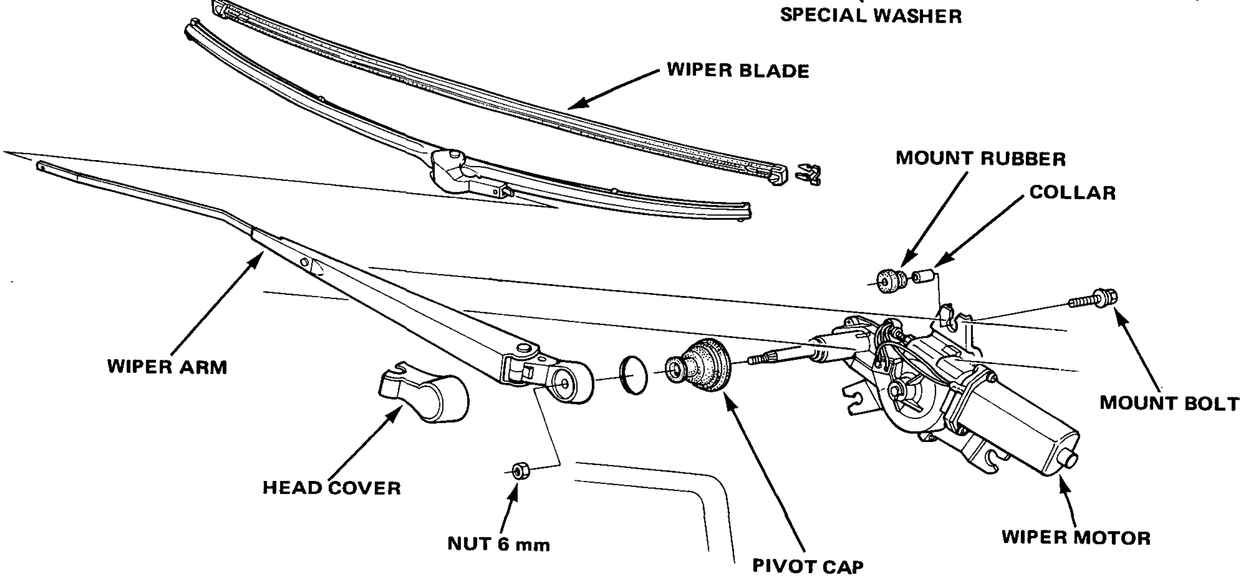
Rear Window Wiper and Motor Replacement

1. Remove the head cover and nut, remove the wiper arm.
2. Remove the pivot cap and special nut (for 2D H/B).
3. Remove the tailgate trim panel, and disconnect the wiper motor wire harness.
4. Remove the motor by removing the motor mount bolts. (Wire motor test is on page 25-10).

2D H/B:


WIPER BLADE
MOUNTING RUBBER
MOUNT BOLT
WIPER MOTOR
COLLAR
PIVOT CAP
SPECIAL NUT
WIPER ARM
WASHER
SEAL RUBBER
HEAD COVER
NUT 6 mm
SPECIAL WASHER

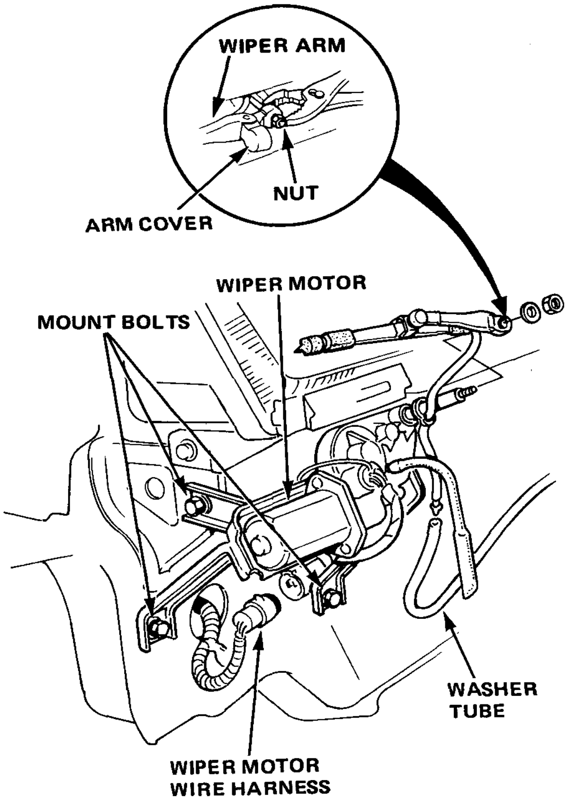
4D H/B:


WIPER BLADE
MOUNT RUBBER
COLLAR
WIPER ARM
MOUNT BOLT
HEAD COVER
NUT 6 mm
PIVOT CAP
WIPER MOTOR

Wipers

Headlight Wiper Motor Replacement

1. Remove the front bumper (page 22-118).
2. Loosen the wiper arm nut.
3. Disconnect the washer tube at the joint.
4. Remove the arm cover and nut, then remove the wiper arm from the wiper motor as shown.
5. Disconnect the wiper motor wire harness, remove the motor by removing the mount bolts. (Wiper motor test is on page 25-21).


WIPER ARM
NUT
ARM COVER
WIPER MOTOR
MOUNT BOLTS
WASHER TUBE
WIPER MOTOR WIRE HARNESS

Wiper Arm Tension Check

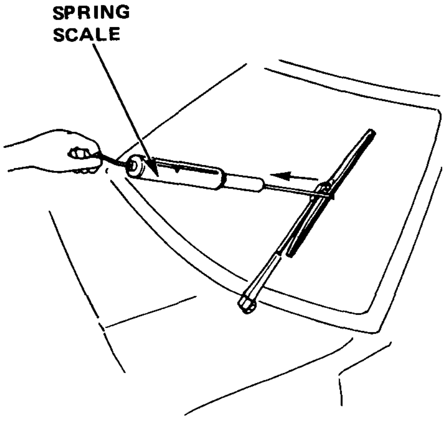
Attach the spring scale to the end of the wiper arm and pull just enough to lift the wiper off the windshield.

Front:

Left Handle Type:
Coupe: 550±50 G (19±1.8 oz.)
650±50 G (23±1.8 oz.) for wing arm
2D H/B and 4D:
600±50 G (21±1.8 oz.)
650±50 G (23±1.8 oz.) for wing arm
4D H/B: 650±50 G (23±1.8 oz.)
700±50 G (25±1.8 oz.) for wing arm
Right Handle Type:
Coupe and 2D H/B: 650±50 G (23±1.8 oz.)
4D: 600±50 G (21±1.8 oz.)
650±50 G (23±1.8 oz.) for wing arm
4D H/B: 700±50 G (25±1.8 oz.)

Rear: 380±50 G (13±1.8 oz.)

Headlight: 200±30 (7±1.1 oz.)


SPRING SCALE

Wiper Arm Installation and Travel

Adjust the wipers so the tips are 20–30 mm (0.8–1.2 in.) from the air scoop at rest.

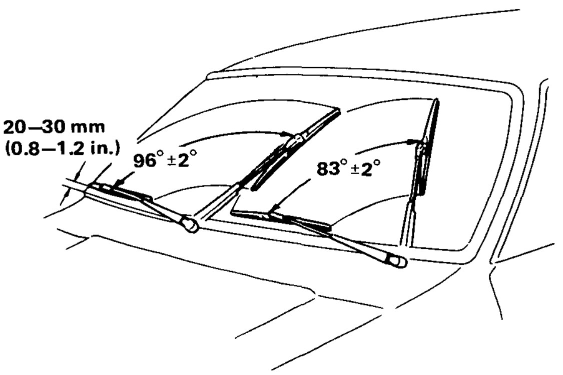
Wiper Blade Travel

Front:

Coupe	83°±2° on driver side 96°±2° on passenger side
2D H/B and 4D	84.5°±2° on driver side 95.6°±2° on passenger side
4D H/B	85°±2° on driver side 100°30′±2° on passenger side

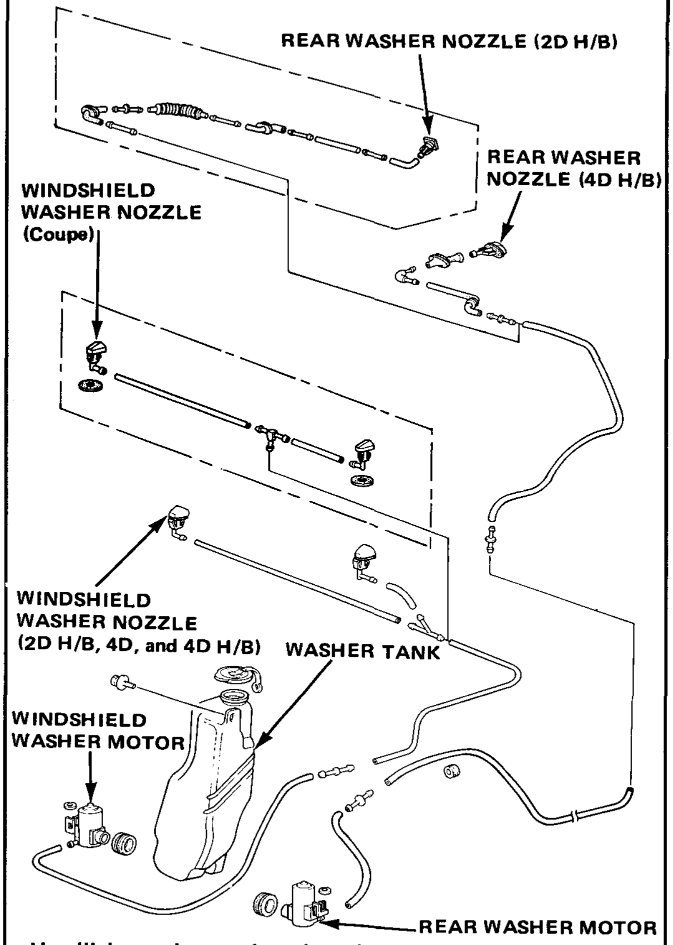
Rear: 170°30′±3°

Headlight: 160°±3°

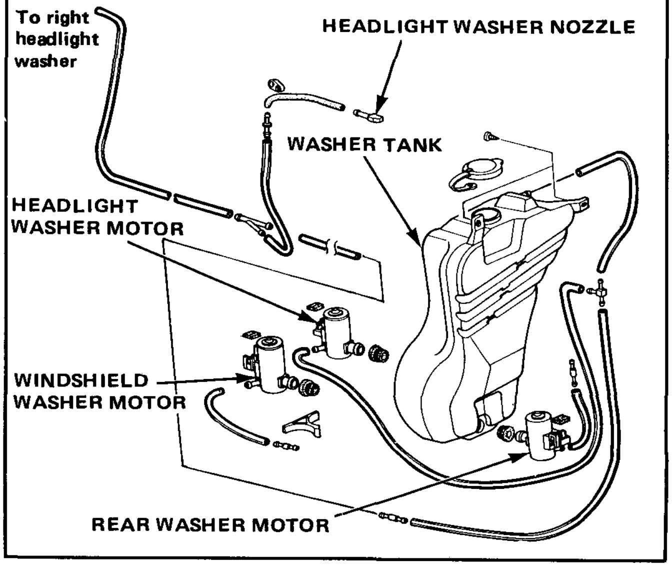

20–30 mm
(0.8–1.2 in.)
96° ±2°
83° ±2°

Washer motor and Tube Replacement

NOTE: Washer motor inspection is on pages 25-10 and 21.


REAR WASHER NOZZLE (2D H/B)
REAR WASHER NOZZLE (4D H/B)
WINDSHIELD WASHER NOZZLE (Coupe)
WINDSHIELD WASHER NOZZLE (2D H/B, 4D, and 4D H/B)
WASHER TANK
WINDSHIELD WASHER MOTOR
REAR WASHER MOTOR

Headlight washer equipped model:


To right headlight washer
HEADLIGHT WASHER NOZZLE
WASHER TANK
HEADLIGHT WASHER MOTOR
WINDSHIELD WASHER MOTOR
REAR WASHER MOTOR

Headlight

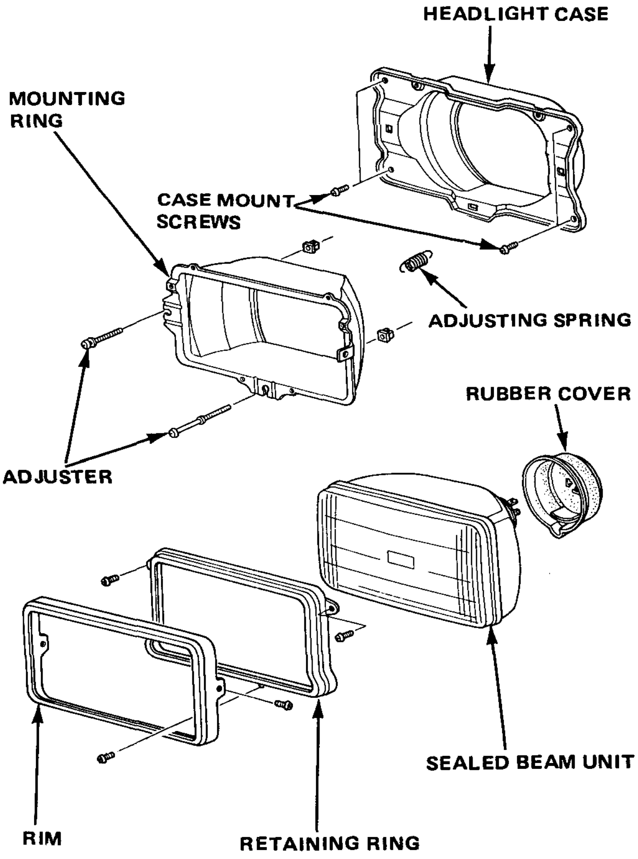
Replacement

Canadian model:

CAUTION:

- Do not touch the units with hands or skin while they are on or just after they are put out. They are hot.
- Do not try to replace the units or clean the headlight until with lights on.
- After replacing the units, install the rubber cover while pushing it tightly to the unit.

1. Remove the parking/side marker light and the front grille, then remove the headlight garnish (see page 22-113).
2. Disconnect the wire harness connector, and remove the rubber cover from the sealed beam unit.
3. Remove the headlight assembly by removing the case mount screws.
4. If necessary, replace the sealed beam unit by removing the retaining ring.

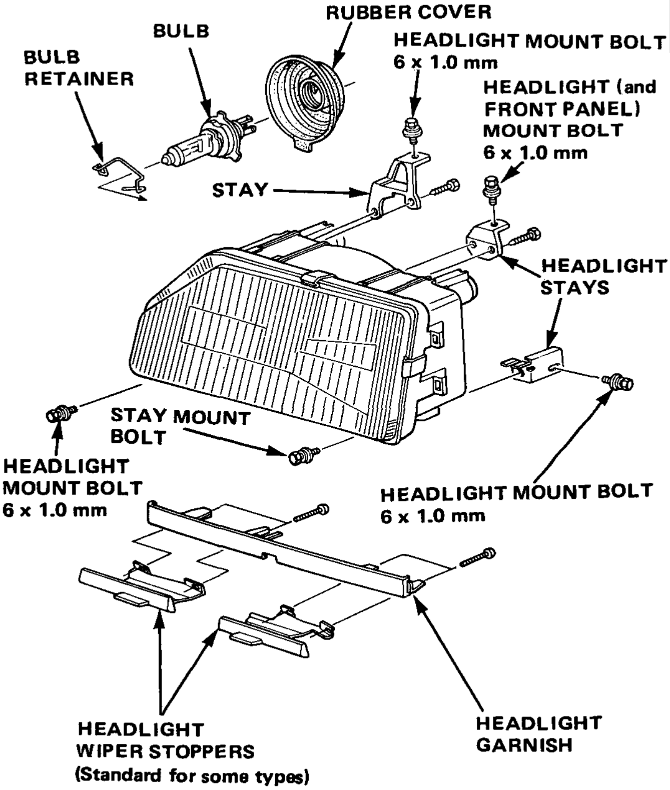

HEADLIGHT CASE
MOUNTING RING
CASE MOUNT SCREWS
ADJUSTING SPRING
RUBBER COVER
ADJUSTER
SEALED BEAM UNIT
RIM
RETAINING RING

Other models:

CAUTION:

- Do not touch the glass surface of bulbs with bare hand or dirty glove. Otherwise it may cause damage their proper function.
- Do not touch bulbs with hands or skin while they are on or just after they are put out. They are hot.
- Do not try to replace bulbs or clean the headlight until with lights on.
- After replacing bulbs, install the boot while pushing it tightly to the unit.

1. Disconnect the wire harness connector.
2. To remove the headlight, first remove the:
   - Front position light.
   - Front bumper. (page 22-118)
   - Front grille. (page 22-113)
3. Remove the headlight mount bolts to remove the headlight.
4. To remove the bulb only, it is not necessary to remove the headlight.

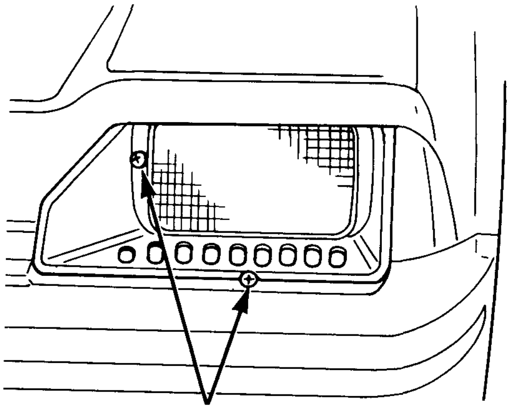

RUBBER COVER
BULB
BULB RETAINER
HEADLIGHT MOUNT BOLT 6 x 1.0 mm
HEADLIGHT (and FRONT PANEL) MOUNT BOLT 6 x 1.0 mm
STAY
HEADLIGHT STAYS
STAY MOUNT BOLT
HEADLIGHT MOUNT BOLT 6 x 1.0 mm
HEADLIGHT MOUNT BOLT 6 x 1.0 mm
HEADLIGHT WIPER STOPPERS (Standard for some types)
HEADLIGHT GARNISH

Taillight

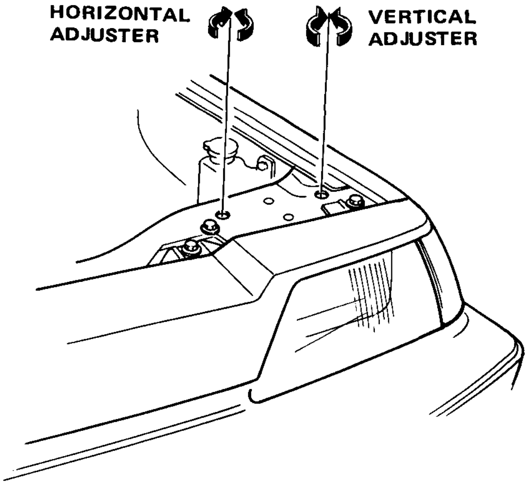
Adjustment

NOTE: Adjust headlight to local requirements.

Canadian model:


ADJUSTING SCREWS

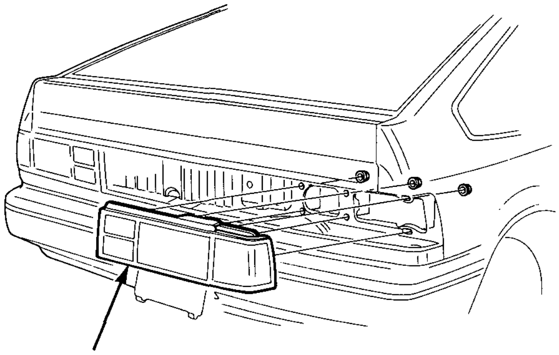
Other models:


HORIZONTAL ADJUSTER
VERTICAL ADJUSTER

Replacement

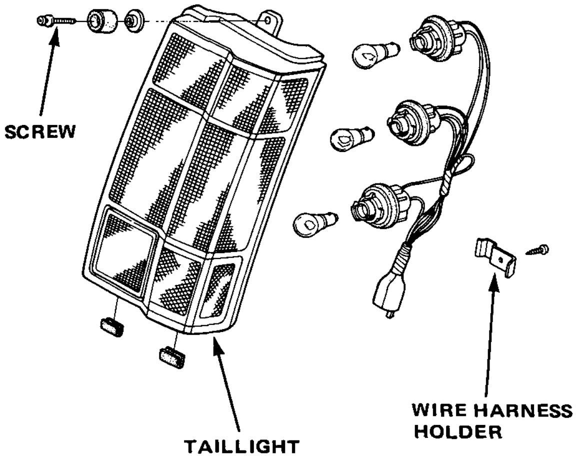
Coupe, 2D H/B, and 4D:

1. Remove the rear trim panel (Coupe and 2D H/B). (pages 22-61 and 62)
2. Remove the rear panel. (page 22-114)
3. Unscrew the nuts, and remove the taillight.



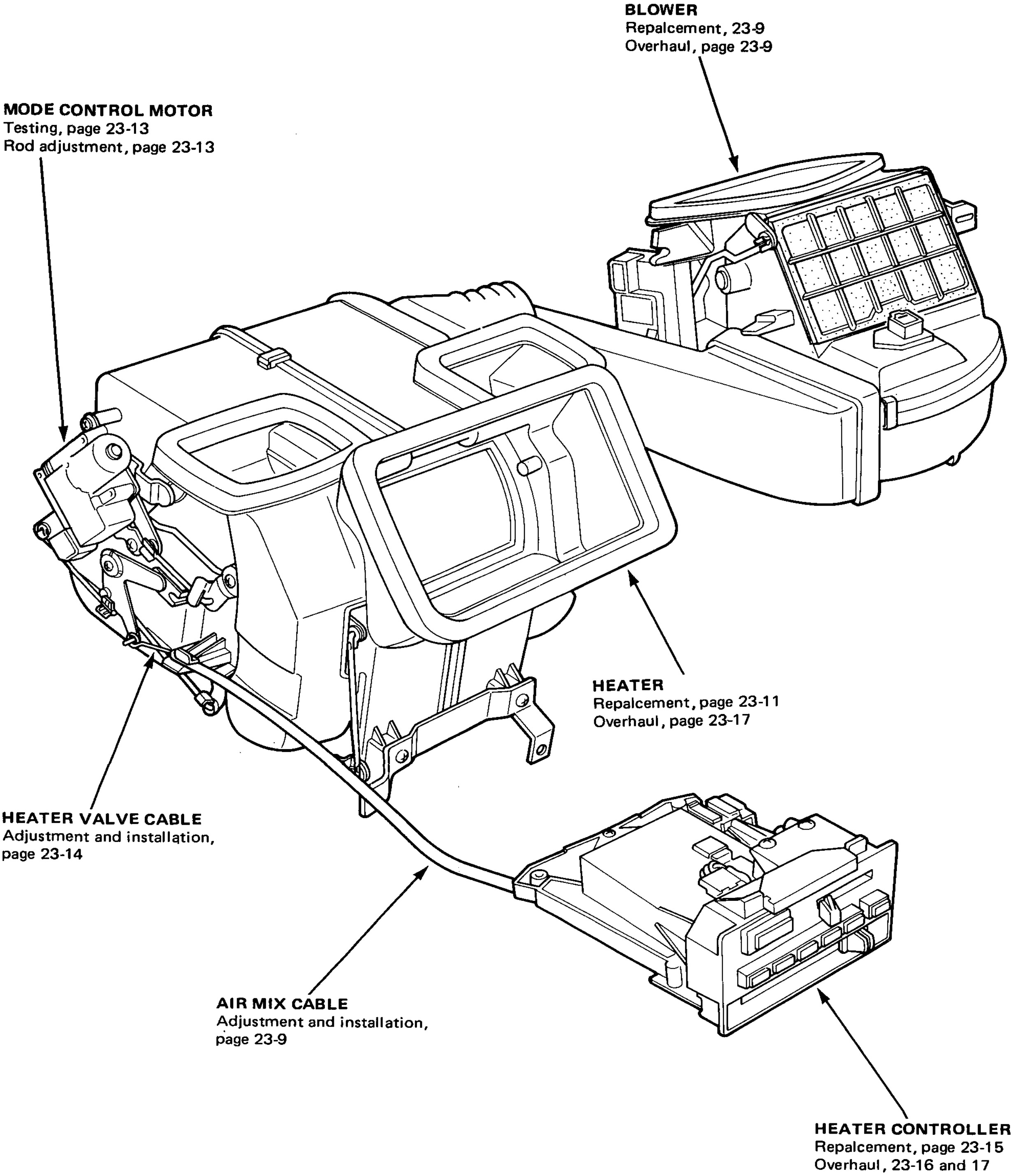
4D H/B:

- Open the tailgate and remove the taillight by removing the screw.


SCREW
TAILLIGHT
WIRE HARNESS HOLDER

Heater

Index



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Overhaul, page 23-9

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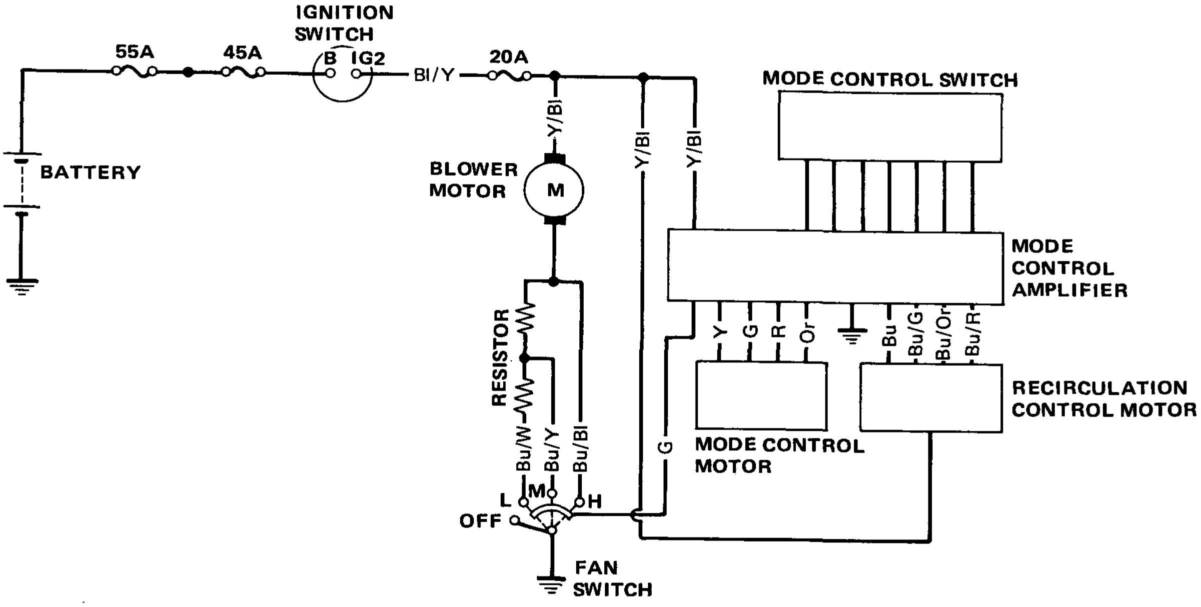
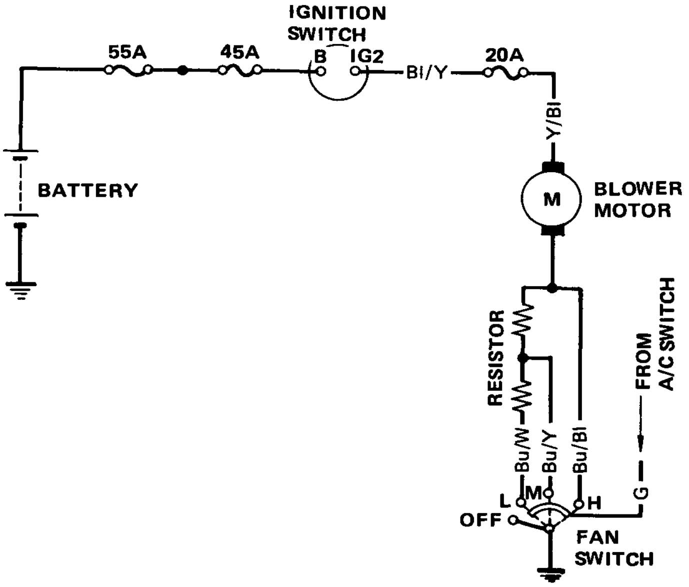
Wiring Diagram

Coupe



IGNITION SWITCH
55A
45A
B
IG2
Bl/Y
20A
BATTERY
BLOWER MOTOR
M
Y/Bl
Y/Bl
Y/Bl
MODE CONTROL SWITCH
MODE CONTROL AMPLIFIER
Y
G
R
Or
Bu
Bu/G
Bu/Or
Bu/R
RECIRCULATION CONTROL MOTOR
MODE CONTROL MOTOR
G
RESISTOR
Bu/W
Bu/Y
Bu/Bl
L
M
H
OFF
FAN SWITCH

2DH/B, 4D, 4DH/B



IGNITION SWITCH
55A
45A
B
IG2
Bl/Y
20A
Y/Bl
BATTERY
BLOWER MOTOR
M
RESISTOR
Bu/W
Bu/Y
Bu/Bl
FROM A/C SWITCH
G
L
M
H
OFF
FAN SWITCH

1. **Insufficient heating**
   - Duct clogged or disconnected
   - Broken air outlet
   - Clogged heater valve
   - Heater valve control cable misadjusted or disconnected
   - Air mix control cable misadjusted or disconnected
   - Faulty cooling system thermostat
   - Clogged heater core
   - Clogged heater hose

2. **Air flow doesn't change when buttons are pushed (Coupe).**

Check No. 14 fuse (20A).

Is it normal? — NO — Repalce and recheck.

YES

Turn ignition switch on. *1

Touch mode control motor for 1–2 minutes.

Does motor remain cool? — NO (HOT) — Bound linkage

YES

Turn ignition switch off. *2

Remove heater controller.

Check for continuity between G terminal (Bl) of 17P connector and body ground.

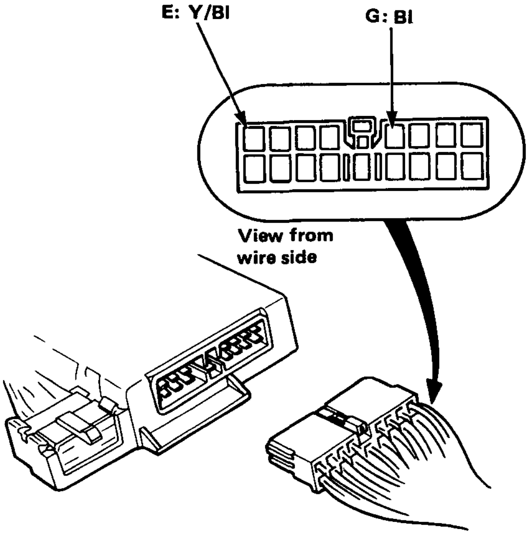
Is there continuity? — NO — Poor ground

YES

Turn ignition switch on.

Measure voltage between E (Y/Bl: positive) and G (Bl: negative) terminals of 17P connector.

See page 23-5.



From page 23-4.

Is 12 volts available? — NO — Open circuit between No. 14 fuse and heater control amplifier

YES

Turn ignition switch off. *3

Remove mode control switch.

Check mode control switch.

Does switch work properly? — NO — Faulty mode control switch

YES

Remove mode control motor.

Check mode control motor.

Does motor work properly? — NO — Faulty mode control motor

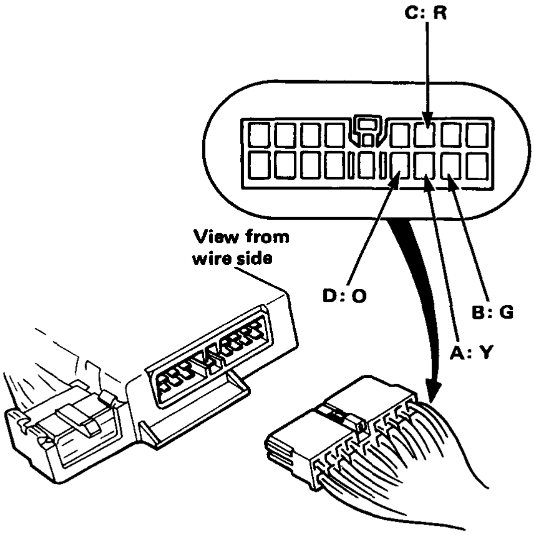
YES

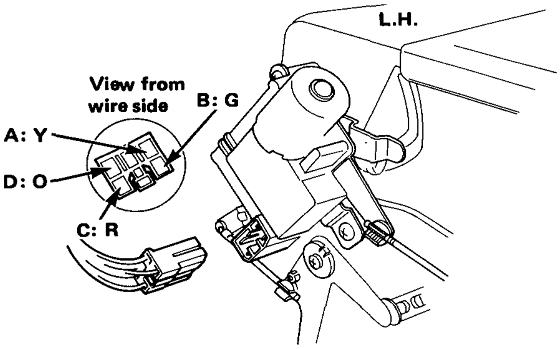
Check leads for continuity between heater control amplifier and mode control motor. *4

Is there continuity? — NO — Open circuit

YES

Faulty heater control amplifier.


C: R
View from wire side
D: O
B: G
A: Y

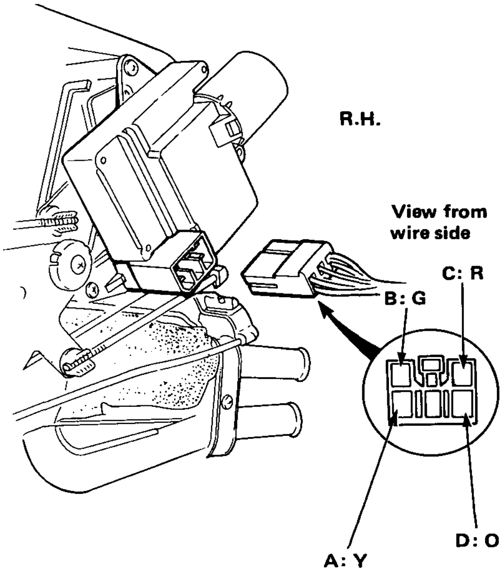

L.H.
View from wire side
B: G
A: Y
D: O
C: R

3. Abnormal air flow (Coupe)

Push button which does not work.

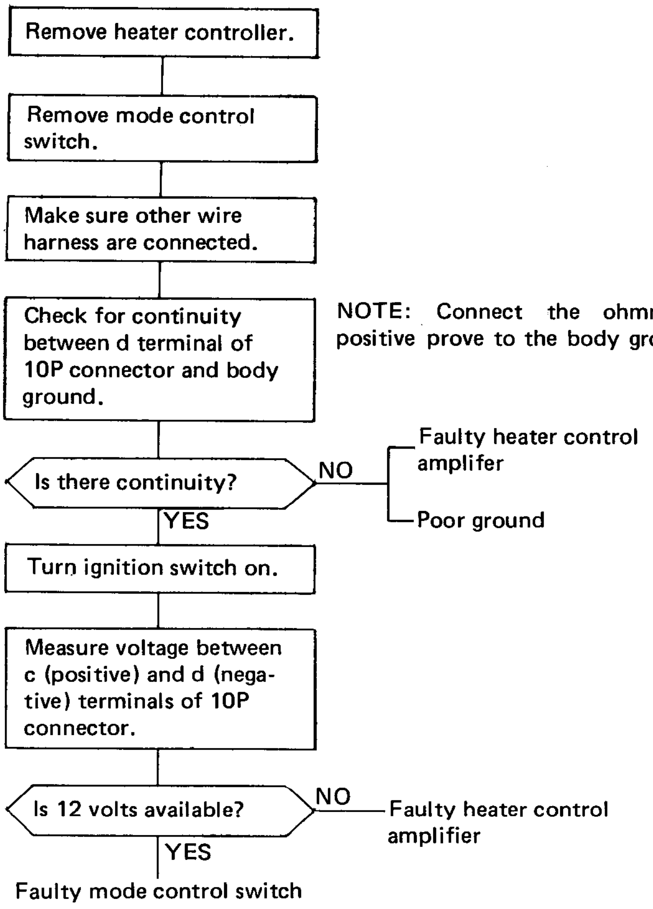
Perform *1—*2 of No. 2 troubleshooting.

Perform *3—*4 of No. 2 troubleshooting.

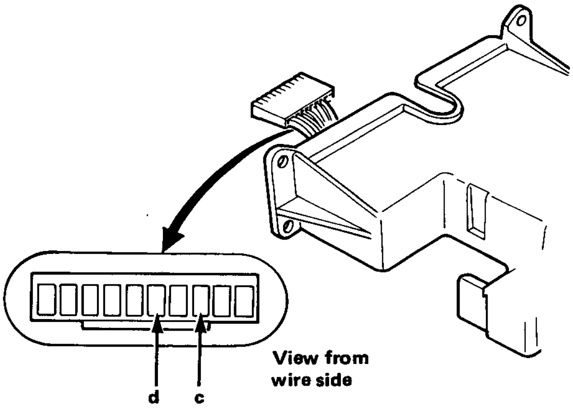

R.H.
View from wire side
C: R
B: G
A: Y
D: O

Troubleshooting

4. All LED's are not lit (Coupe)

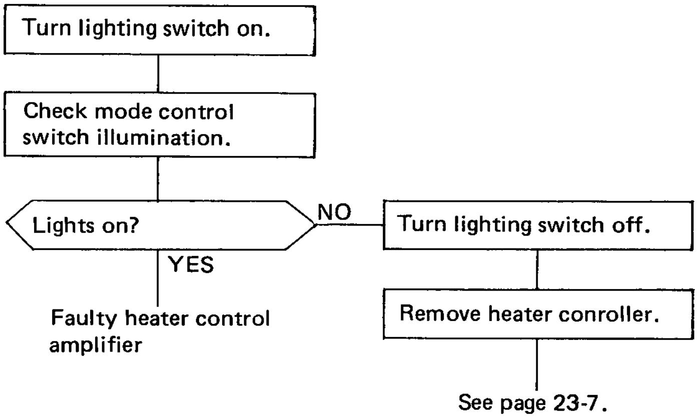

Remove heater controller.
Remove mode control switch.
Make sure other wire harness are connected.
Check for continuity between d terminal of 10P connector and body ground.
Is there continuity?
NO
Faulty heater control amplifer
Poor ground
YES
Turn ignition switch on.
Measure voltage between c (positive) and d (negative) terminals of 10P connector.
Is 12 volts available?
NO
Faulty heater control amplifier
YES
Faulty mode control switch

NOTE: Connect the ohmmeter positive prove to the body ground.


d
c
View from wire side

5. One LED does not light when a mode control switch is pushed. However air flow is normal (Coupe).
Faulty Mode control switch

6. Brightness of LED is not reduced when lighting switch is turned on (Coupe).


Turn lighting switch on.
Check mode control switch illumination.
Lights on?
NO
Turn lighting switch off.
Remove heater conroller.
See page 23-7.
YES
Faulty heater control amplifier

From page 23-6.

Check bulb.

Is it normal? — NO — Replace and recheck.

YES

Faulty mode control switch

7. Recirculation door malfunction (Coupe)

Turn ignition switch on.

Touch recirculation control motor and wait for 1–2 minutes.

Does motor remains cool? — NO (HOT) — Bound linkage

YES

Turn ignition switch off.

Remove heater controller.

Check mode control switch.

Does switch work properly? — NO — Faulty mode control switch

YES

Check for continuity between f and Y terminals of heater control amplifier.

Is there continuity? — NO — Faulty heater control amplifier

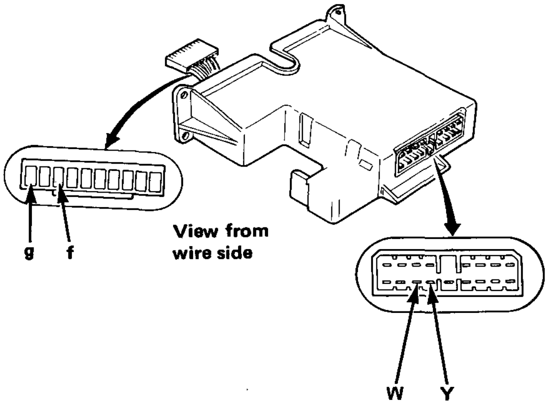
YES

Check for continuity between g and W terminals of heater control amplifier.

Is there continuity? — NO — Faulty heater control amplifier

YES

See page 23-8.



Troubleshooting

From page 23-7.

Remove recirculation control motor.

Check recirculation control motor.

Does motor work properly?

NO — Faulty recirculation control motor.

YES

Check leads for continuity between recirculation control motor and heater control amplifier.

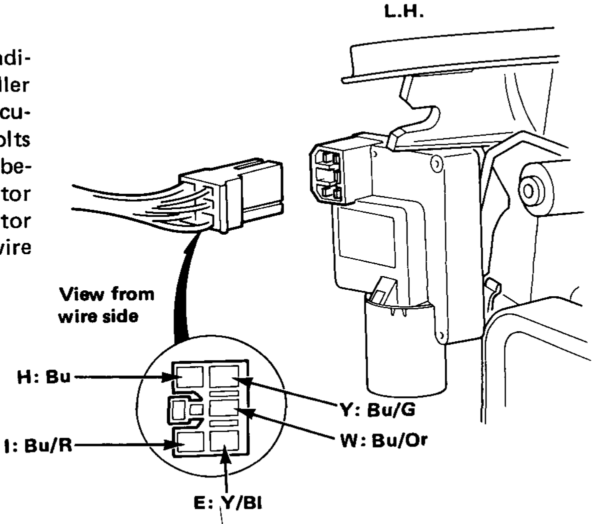
Is there continuity?

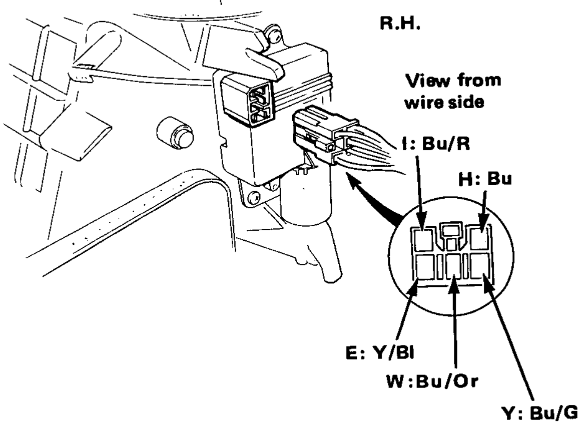
NO — Open circuit

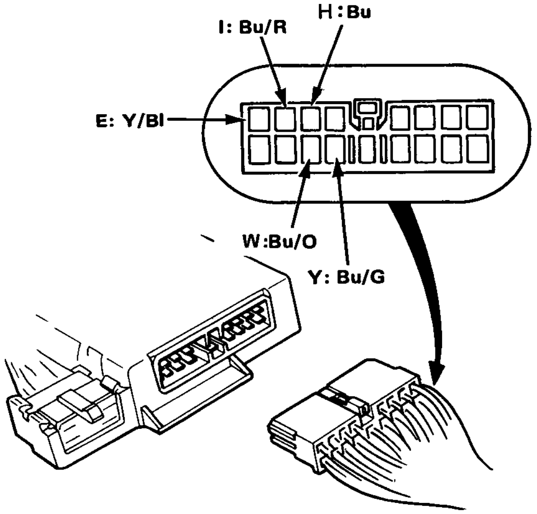
YES

Faulty heater control amplifer

NOTE: On cars with an air conditioner, remove the heater controller and check operation of the recirculation motor by applying 12 volts and checking for continuity between terminals of 17P connector of the wire harness. If the motor does not operate, the motor or wire harness may be faulty.


L.H.
View from wire side
H: Bu
Y: Bu/G
W: Bu/Or
I: Bu/R
E: Y/Bl


R.H.
View from wire side
I: Bu/R
H: Bu
E: Y/Bl
W:Bu/Or
Y: Bu/G


I: Bu/R
H:Bu
E: Y/Bl
W:Bu/O
Y: Bu/G

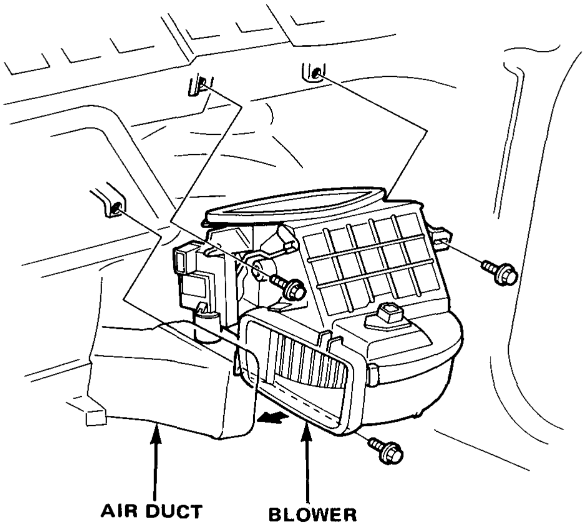
Blower

Replacement

1. Remove the glove box (2DH/B,4D) or passenger's tray (4D H/B).
2. Remove the glove box frame (2DH/B, 4D).
3. Remove the air duct.
4. Disconnect the wire harness from the blower.
5. Remove the three mounting bolts and remove the blower.

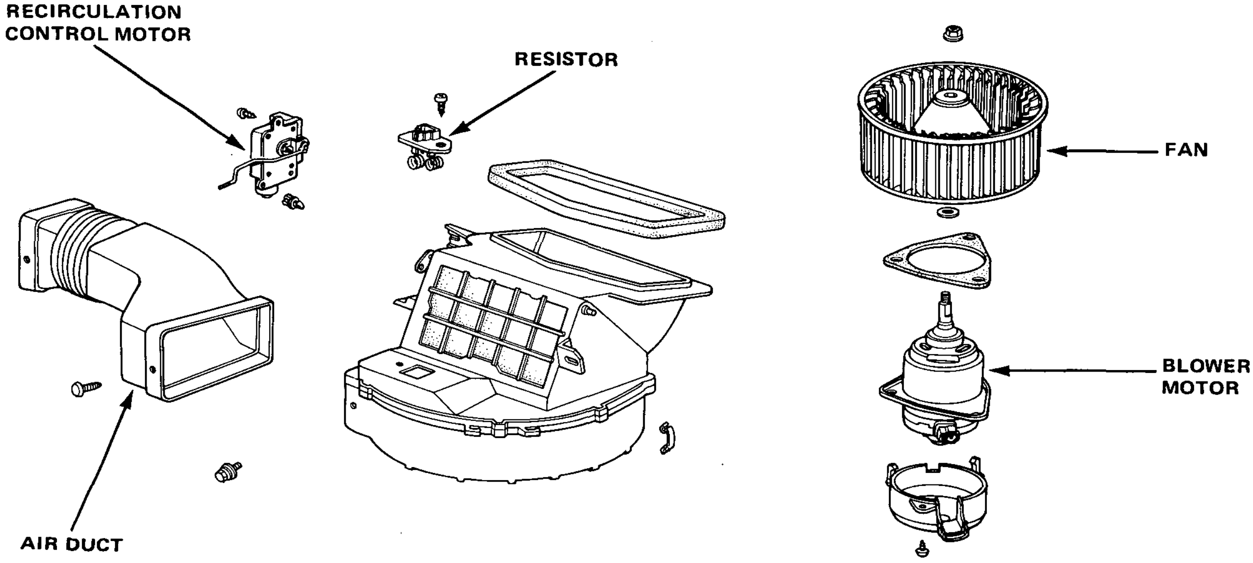
Install the blower in the reverse order of removal and make sure that there is no air leakage at mating surface between the blower and the duct.

NOTE: On coupe's with an air conditioner, remove the evaporator unit before removing the blower.


AIR DUCT
BLOWER

Overhaul

CAUTION: Do not disassenble the linkage on the recirculation control motor.

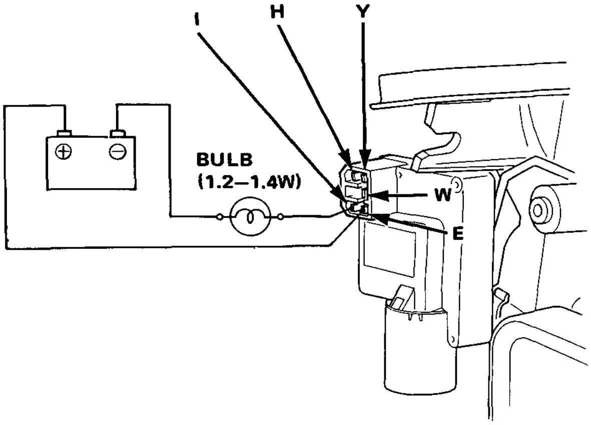

RECIRCULATION CONTROL MOTOR
RESISTOR
FAN
BLOWER MOTOR
AIR DUCT

NOTE: 2D shown.

Blower

Recirculation Control Motor Testing (Coupe)

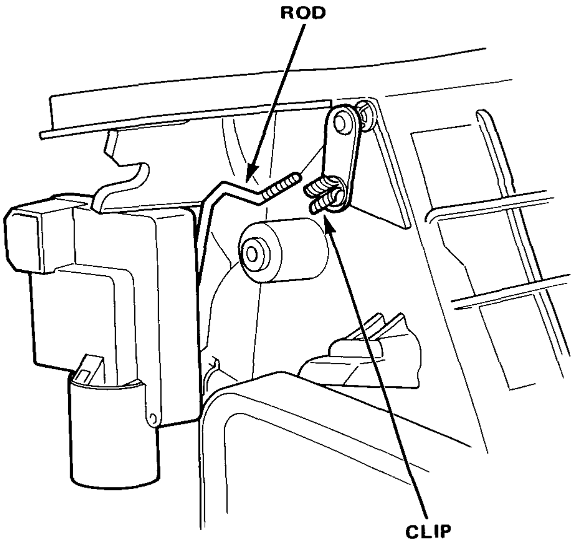
- Connect a battery positive lead to the E terminal of the recirculation control mootr, and negative lead to the I terminal. The motor should run.
- Connect a battery and bulb as shown. Connect the ohmmeter probes to the Y and H terminals.
  The ohmmeter should constantly cycle between indicating continuity and no continuity.
  The connect the ohmmeter to terminals W and H. The ohmmeter should continue to cycle back and forth but hesitate slightly longer when indicating continuity.



Recirculation Control Rod Adjustment (Coupe)

1. Connect the wire harness and turn on the ignition switch. Push in the REC button.
2. Move the recirculation door to the REC position.
3. Insert the rod into the clip.

NOTE: Check that the motor remains cool if the door is left in each position for 2 minutes.

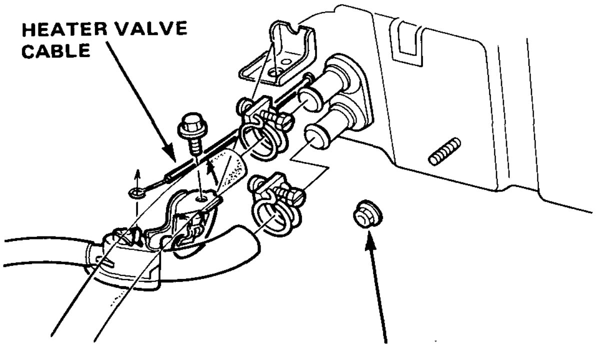


Heater

Replacement

1. Drain coolant at the radiator.
2. Disconnect the heater hoses at the firewall.

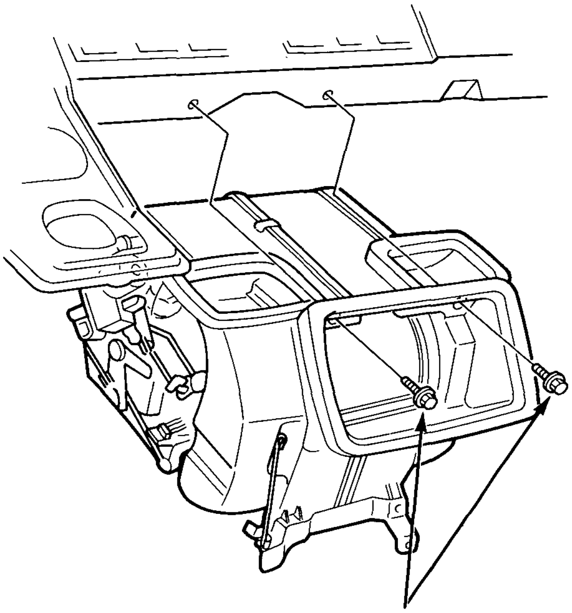
   NOTE: Coolant will run out when the hoses are disconnected, drain it into a clean drip pan.
3. Disconnect the heater valve cable from the heater valve.
4. Remove the heater lower mounting nut.



22 N.m (2.2 kg-m, 16 lb-ft)

5. Remove the dashboard. (Pages 22 - 108 to 110)

6. Remove the heater mounting bolts (2), then pull the heater away from the body and remove it.



10 N.m (1.0 kg-m, 7 lb-ft)

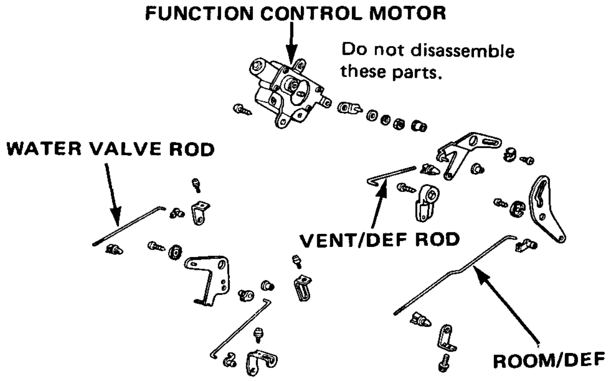
Install in reverse order of removal, and:

- Apply a sealant to the grommets.
- Do not interchange the inlet and outlet hoses. Make sure that hose clamps are secure.
- Loosen the bleed bolt on the engine and refill the radiator and reservoir tank with the proper coolant mixture.

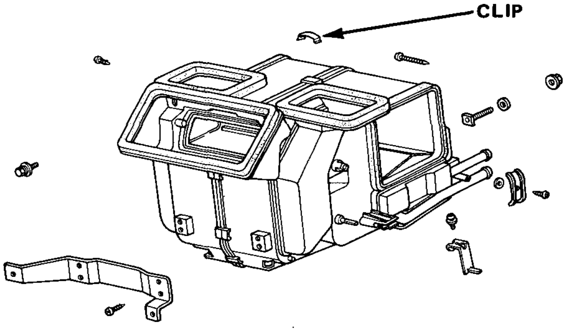
  Tighten the bleed bolt when all trapped air has escaped and coolant begins to flow from it.
- Connect all cables so they are properly adjusted (see page 23-14).

Replacement

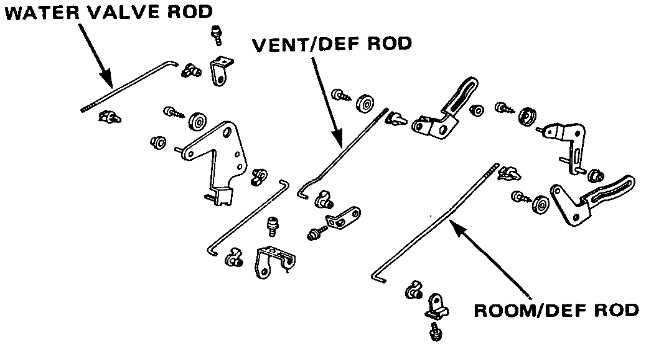
Coupe

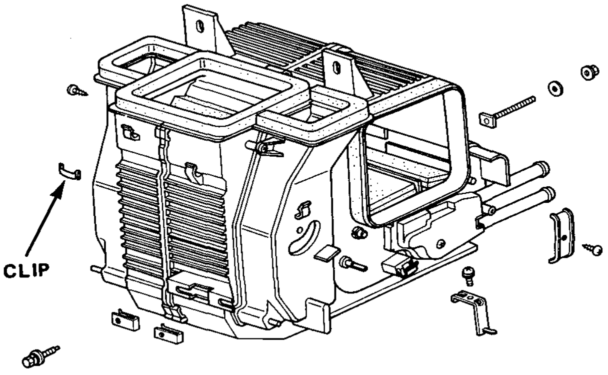

FUNCTION CONTROL MOTOR
Do not disassemble these parts.
WATER VALVE ROD
VENT/DEF ROD
ROOM/DEF

CAUTION: Do not remove the linkage which is installed on the function control motor.



2DH/B, 4D, 4DH/B


WATER VALVE ROD
VENT/DEF ROD
ROOM/DEF ROD



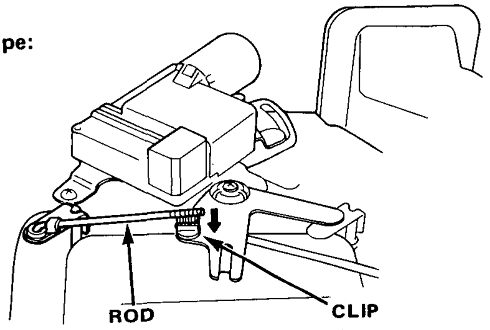
To adjust the door,

1. Set the function control arm to the DEF position.
2. Set the doors to the DEF position.
3. Insert the rods into the clips.
4. Move the function control arm to the VENT position to be cartain that the doors operate smoothly.

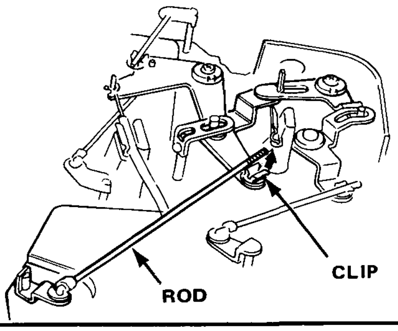
If the air mix control rod*1 is disconnected from the air mix control arm, move the air mix control arm to the COLD position. The move the control rod to the COLD positon and insert the rod into the clip.

*1 L.H.: Air mix control rod
R.H.: Heater valve control rod

Coupe:



2DH/B, 4D, 4DH/B



Mode Control Motor Testing (Coupe)

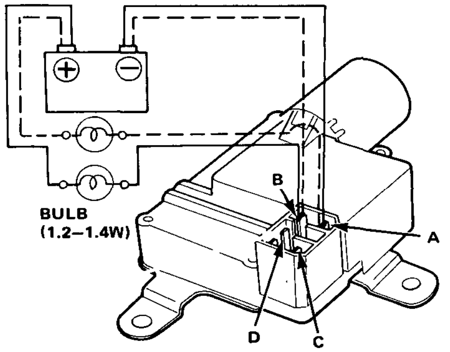
- Measure the resistance between D and no marked terminals.

  Resistance: 5 kΩ

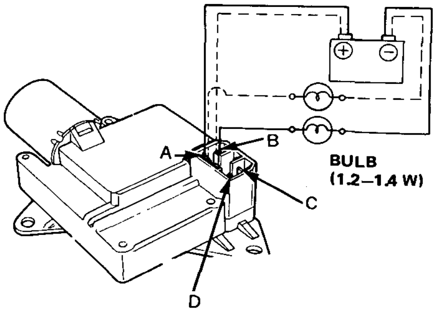
- Check motor operation by connecting a wire from the battery positive terminal to the A terminal, and a battery ground to the B terminal. Reverse the wires to be sure the motor will run in both directions.
  NOTE: The motor will be blocked externally. Be sure to disconnect the battery from the motor as soon as the motor is stopped. Failure to do so will damage the motor.

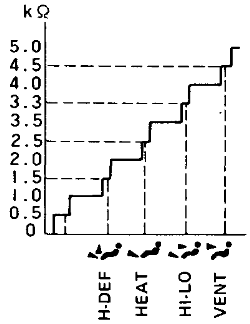
- Hook up a battery and bulb to the motor terminals as shown, and measure the resistance between the terminals C and D. The motor is normal if the resistances measured agree with those shown in the table on the right. Also check the resistances with the battery polarity reversed.

L.H.



R.H.

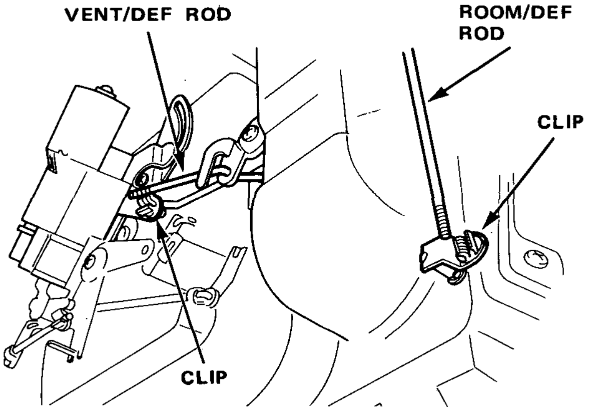




Rod Adjustment(Coupe)

1. Attach the mode control motor to the heater.
2. Connect the wire harness to the motor and turn the ignition switch on. Push in the ♨ (DEF) button.
3. Move the VENT/DEF door to the DEF position and insert the rod into the clip.
4. Move the ROOM/DEF door to the DEF position and insert the rod into the clip.

NOTE: Check that the motor remains cool when the doors are held in each position for 2 minutes.

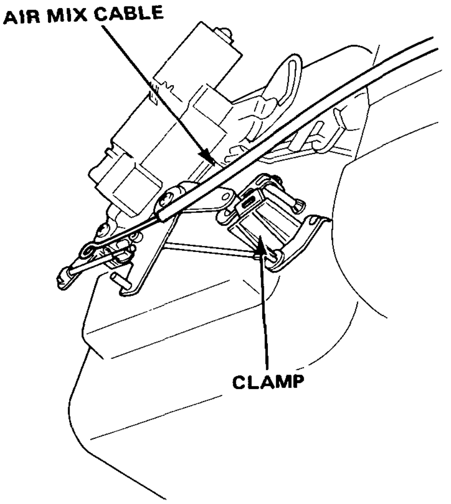


Heater Control Cable

Adjustment and Installation

Air Mix Cable

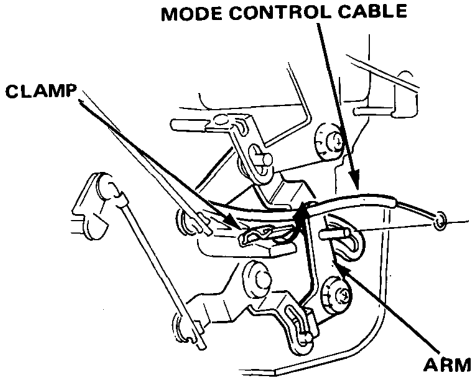
1. Side the temperature control lever to COLD.
2. Close the air mix door, then connect the end of the cable to the arm and secure the cable housing with the clamp.



3. While looking through the heater duct opening, side the temperature lever to HOT and make sure the air mix doors open fully, the side the lever back to COLD.
   Make sure they close fully.

Mode Control Cable

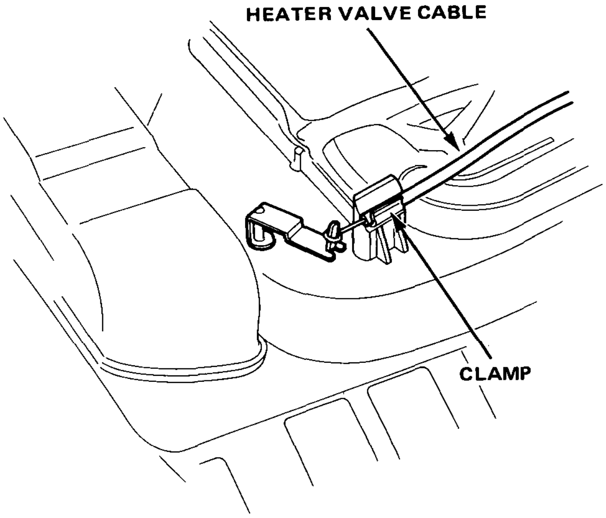
1. Slide the mode control lever to the DEF position.
2. Move the mode control arm to the DEF position.
3. Connect the cable end to the function control arm, then secure the cable housing with the clamp.



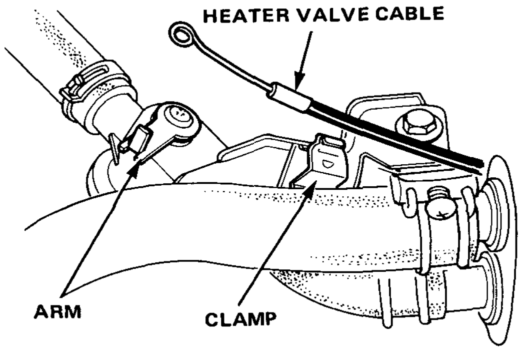
4. Move the mode control lever to the VENT position and check that the linkage operates smoothly.

Heater Valve Cable

1. Extend the end of the cable housing 5 mm (1/5 in.) from the end of the clamp boss and secure the housing with the clamp.
2. Connect the cable end to the heater valve control arm.



3. Slide the temperature control lever to COLD.
   Close the heater valve fully, then connect the end of the heater cable to the valve arm, and secure the cable housing with the clamp as shown.

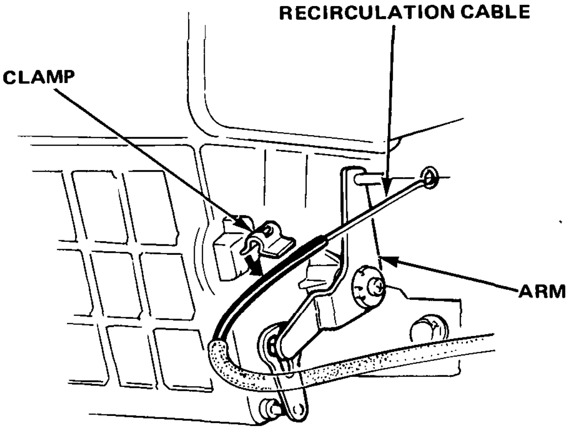


Heater Control Cable

Adjustment and Installation

Recirculation Cable

1. Slide the recirculation lever to the FRESH position.
2. Open the recirculation door.
3. Connect the recirculation cable to the recirculation arm and secure the cable housing with the clamp.



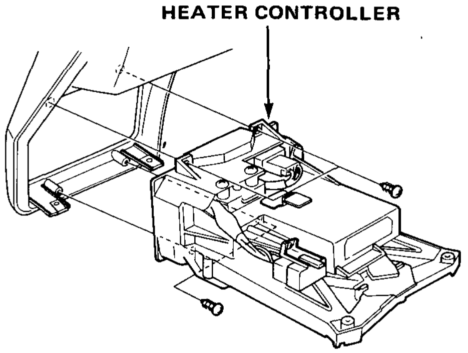
4. Move the recirculation lever to the REC position to be certain that the linkage operates smoothly.

Heater Control Panel

Replacement

Coupe

1. Disconnect the air mix cable from the heater.
2. Remove the trim panel.
3. Remove the temperature control lever knob and four screws, then remove the heater control panel from trim panel.



2D H/B, 4D, 4D H/B

1. Disconnect the temperature control cable, the function comtrol cable and the recirculation cable.
2. Remove the heater control knobs and the fan switch knob.

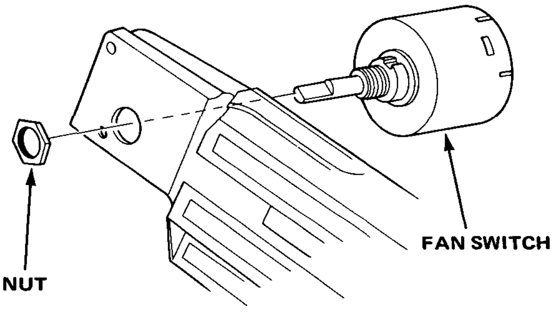
2D H/B and 4D

3. Remove the center face panel.
4. Remove the heater control attaching screws.

4D H/B

3. Remove the illumination panel.
4. Remove the steering column mounting bolts and drop the steering column.
5. Remove the steering column mounting bolts, and drop the steering column.
6. Pull out the heater control panel from the side post the steering column.

NOTE: On the hatchback and sedan, the fan switch can be serviced separately. Remove the ashtray and heat shield. Remove the heater control knob and panel. Then remove the fan switch by removing the nut.

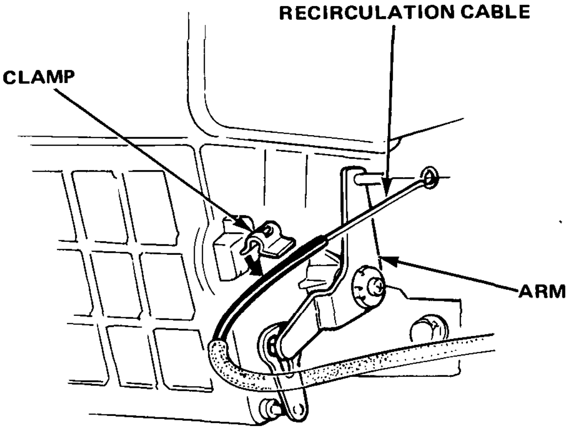


Heater Control Cable

Adjustment and Installation

Recirculation Cable

1. Slide the recirculation lever to the FRESH position.
2. Open the recirculation door.
3. Connect the recirculation cable to the recirculation arm and secure the cable housing with the clamp.



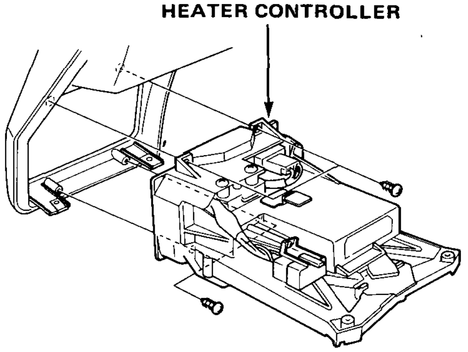
4. Move the recirculation lever to the REC position to be certain that the linkage operates smoothly.

Heater Control Panel

Replacement

Coupe

1. Disconnect the air mix cable from the heater.
2. Remove the trim panel.
3. Remove the temperature control lever knob and four screws, then remove the heater control panel from trim panel.



2D H/B, 4D, 4D H/B

1. Disconnect the temperature control cable, the function comtrol cable and the recirculation cable.
2. Remove the heater control knobs and the fan switch knob.

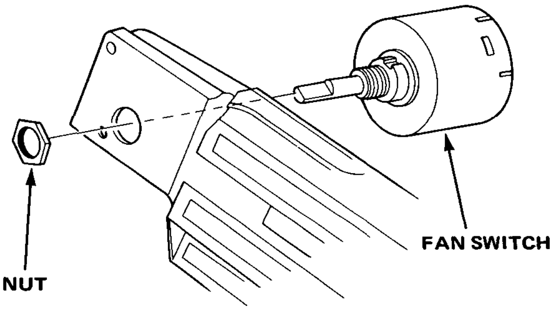
2D H/B and 4D

3. Remove the center face panel.
4. Remove the heater control attaching screws.

4D H/B

3. Remove the illumination panel.
4. Remove the steering column mounting bolts and drop the steering column.
5. Remove the steering column mounting bolts, and drop the steering column.
6. Pull out the heater control panel from the side post the steering column.

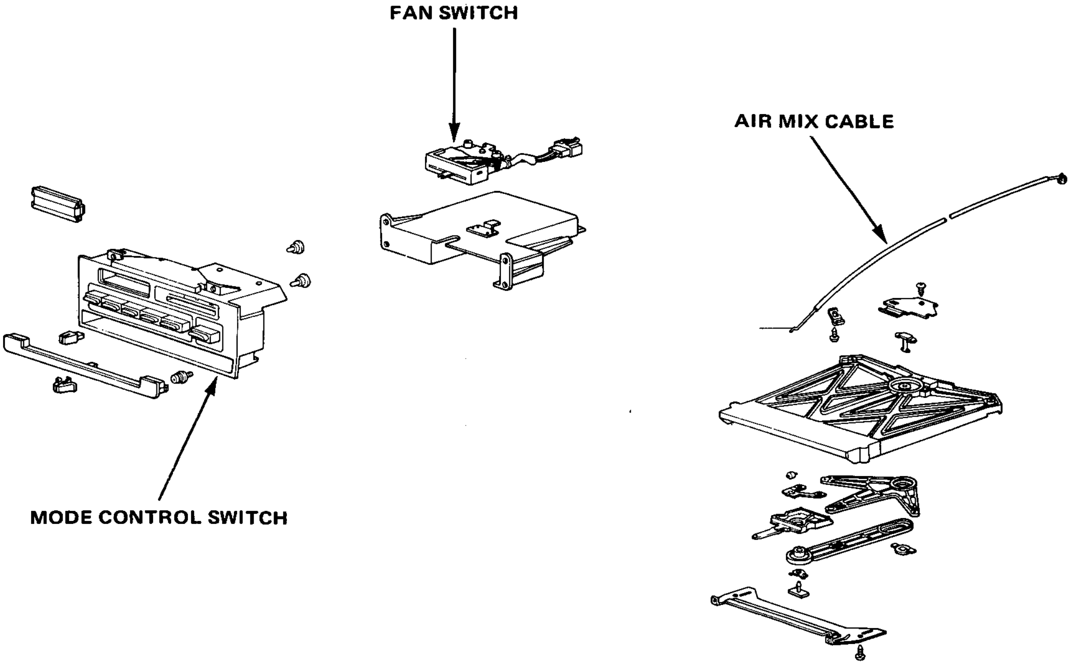
NOTE: On the hatchback and sedan, the fan switch can be serviced separately. Remove the ashtray and heat shield. Remove the heater control knob and panel. Then remove the fan switch by removing the nut.



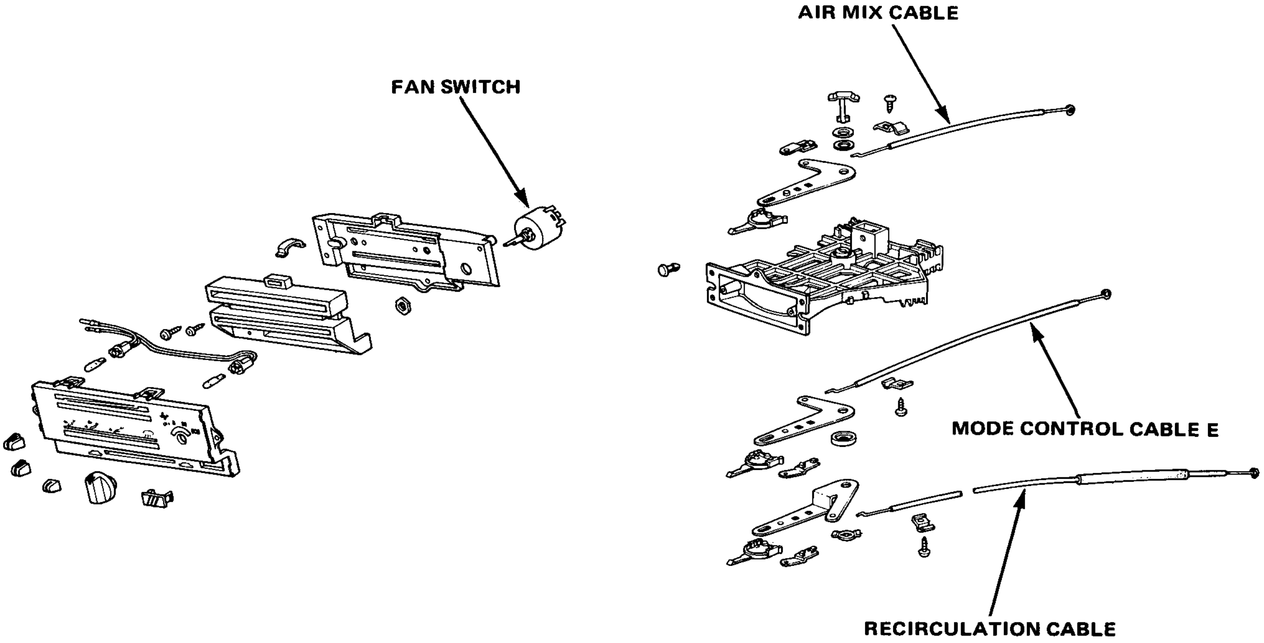
Heater Controller

Overhaul

Coupe


FAN SWITCH
AIR MIX CABLE
MODE CONTROL SWITCH

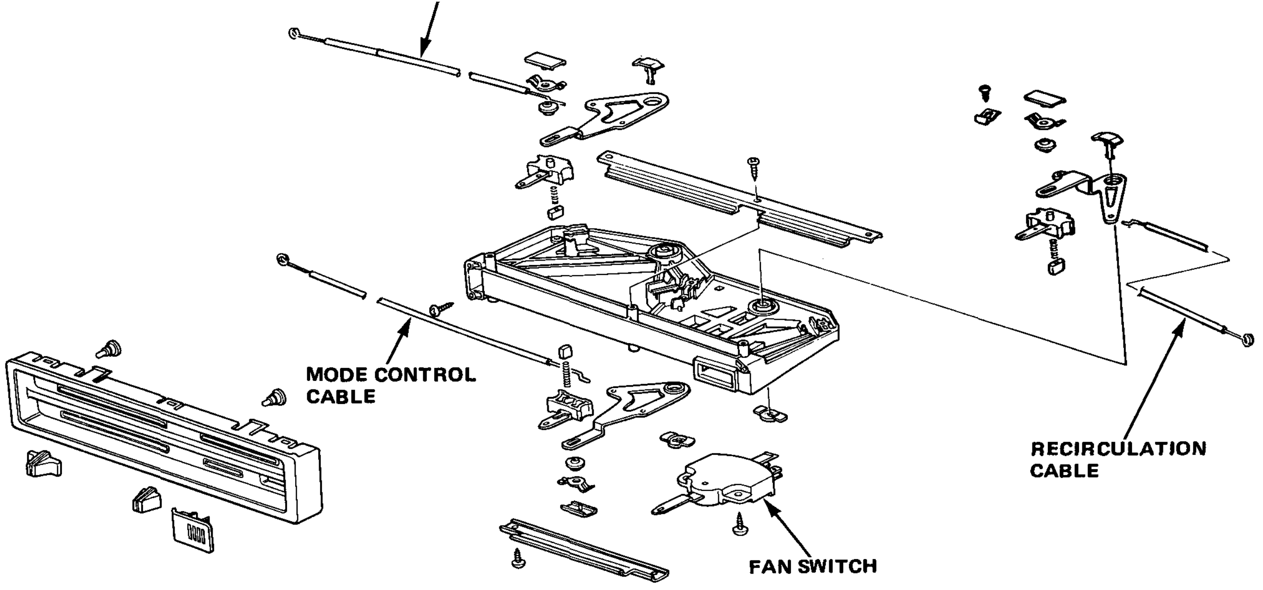
2DH/B, 4D


AIR MIX CABLE
FAN SWITCH
MODE CONTROL CABLE E
RECIRCULATION CABLE

Heater Controller

Overhaul

4DH/B

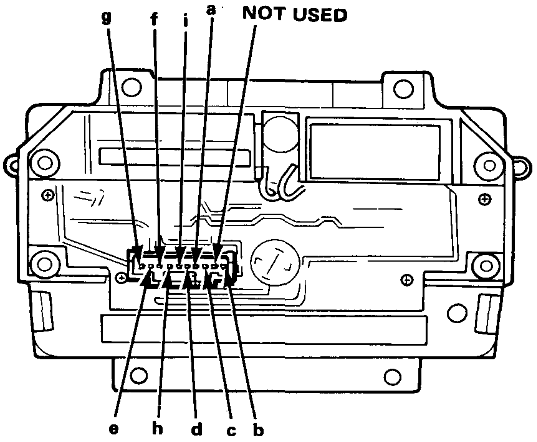

AIR MIX CABLE
MODE CONTROL CABLE
RECIRCULATION CABLE
FAN SWITCH

Mode Control Switch Testing

- Check the resistances between a and b terminals *when pushing the buttons.*

Resistances:
VENT : 0kΩ
HI-LO : 1kΩ
HEAT : 2kΩ
H-DEF : 3kΩ
DEF : 4kΩ

- There should be continuity between the e and g terminals when the REC button is pushed in, and no continuity when released. There should be no continuity between e and f terminals when the REC button is pushed, in and continuity when released.


g
f
i
a
NOT USED
e
h
d
c
b

NOTE:

- The "c" terminal is the positive terminal fo the LED and the "d" terminal is negative. The LED can not be tested with ordinary circuit testers. If there is any abnormality in the LED, refer to troubleshooting to determine the cause of trouble.
- The "h" terminal is the positive terminal of the LED and "i" terminal is negative.

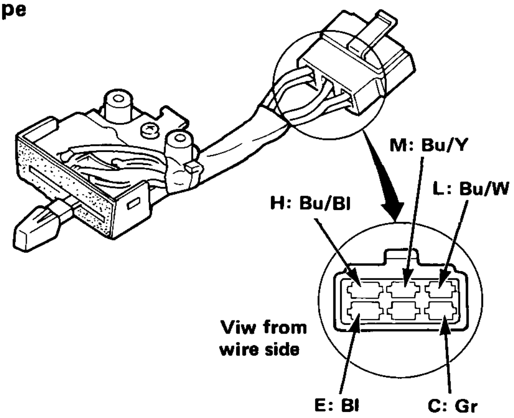
Heater Controller

Fan Switch Testing

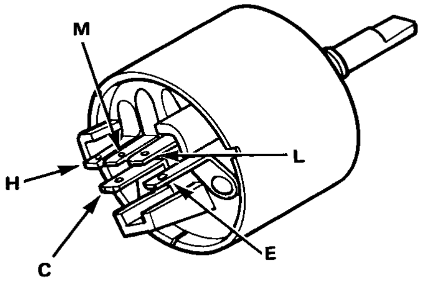
Check for continuity according to the table.

Terminal / Position	E	L	M	H	C
OFF					
I	○	○			○
II	○		○		○
III	○			○	○

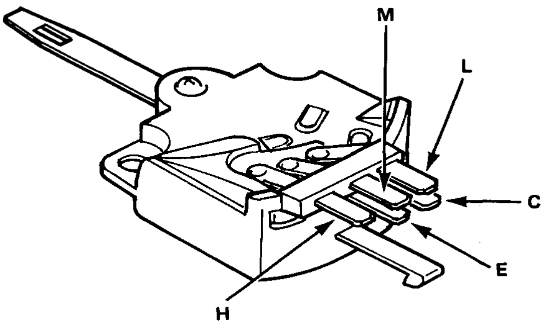
Coupe


M: Bu/Y
L: Bu/W
H: Bu/Bl
Viw from
wire side
E: Bl
C: Gr

2DH/B, 4D

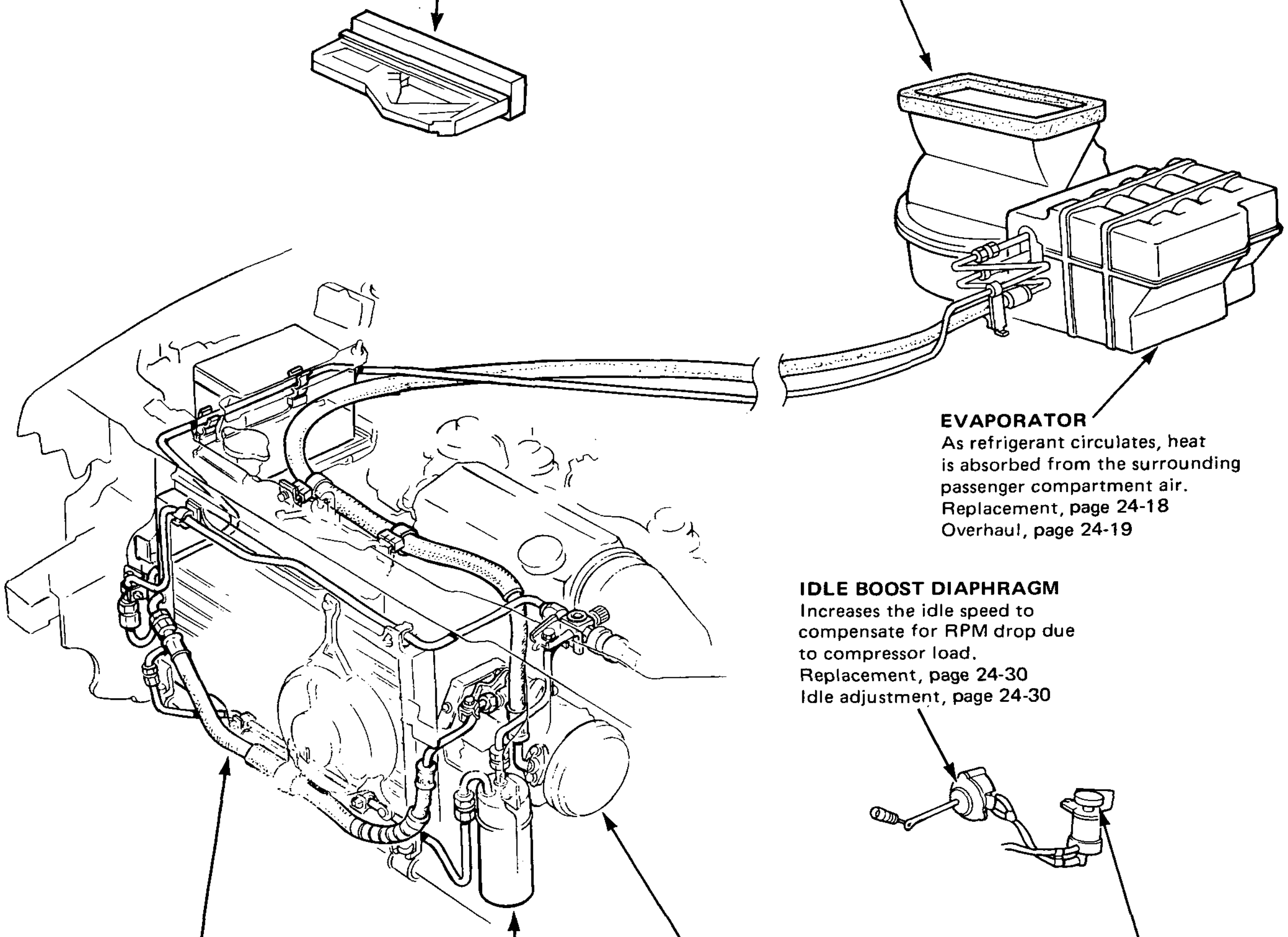


4DH/B



Index

System



HEATER AND AIR CONDITIONING CONTROL PANEL
Activates compressor and controls heater and air conditioner air mix.
Removal, page 23-15

BLOWER
Forces air thru the evaporator.
Removal, page 23-9

EVAPORATOR
As refrigerant circulates, heat is absorbed from the surrounding passenger compartment air.
Replacement, page 24-18
Overhaul, page 24-19

IDLE BOOST DIAPHRAGM
Increases the idle speed to compensate for RPM drop due to compressor load.
Replacement, page 24-30
Idle adjustment, page 24-30

IDLE CONTROL SOLENOID
Activates the Control Diaphragm when compressor is running.
Replacement, page 24-30

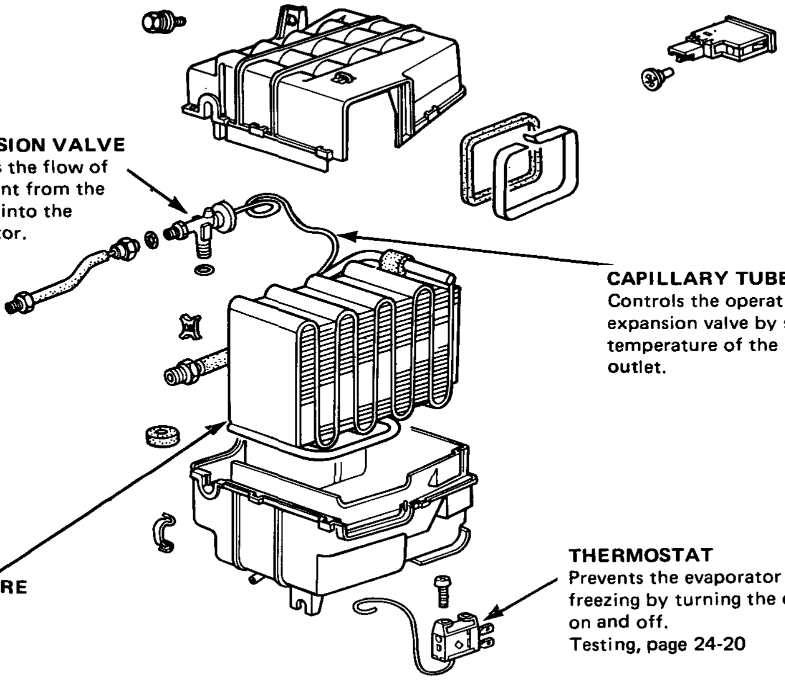
CONDENSER
Dissipates the heat which was absorbed by the refrigerant.
Replacement, page 24-17

COMPRESSOR
Compresses the refrigerant and then forces it thru the condenser.
Compressor troubleshooting, page 24-13
Clutch inspection, page 24-22
Overhaul, page 24-23

RECEIVER AND FILTER/DRYER
Serves as a reservoir which filters and removes moisture from the refrigerant.

Evaporator

Overhaul, page 24-19
Replacement, page 24-18



EXPANSION VALVE
Controls the flow of refrigerant from the receiver into the evaporator.

CAPILLARY TUBE
Controls the operation of the expansion valve by sensing the temperature of the refrigerant outlet.

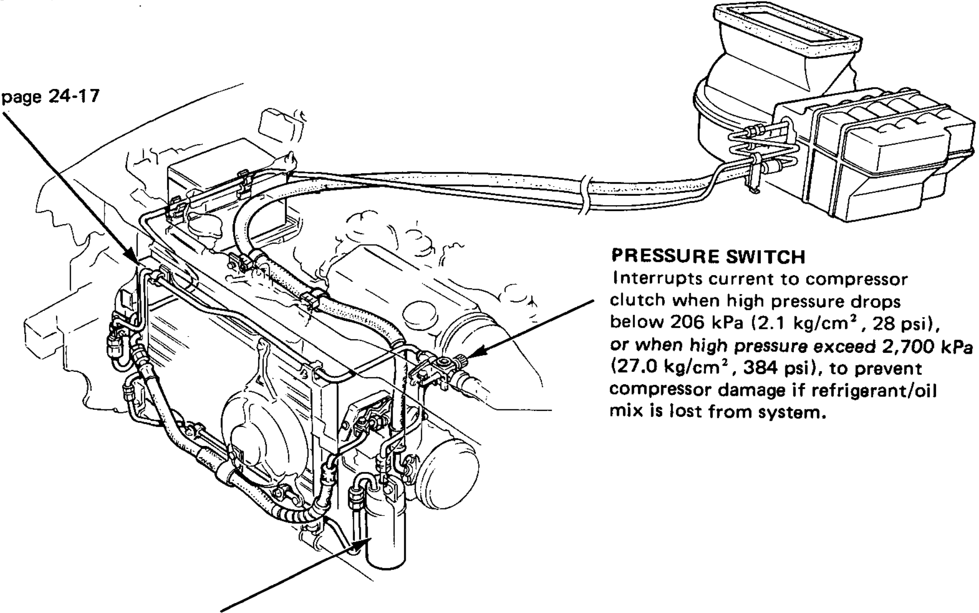
EVAPORATOR CORE

THERMOSTAT
Prevents the evaporator from freezing by turning the compressor on and off.
Testing, page 24-20

Condenser

CHARGING and TESTING VALVES

System charging, page 24-29
Pressure testing, page 24-27



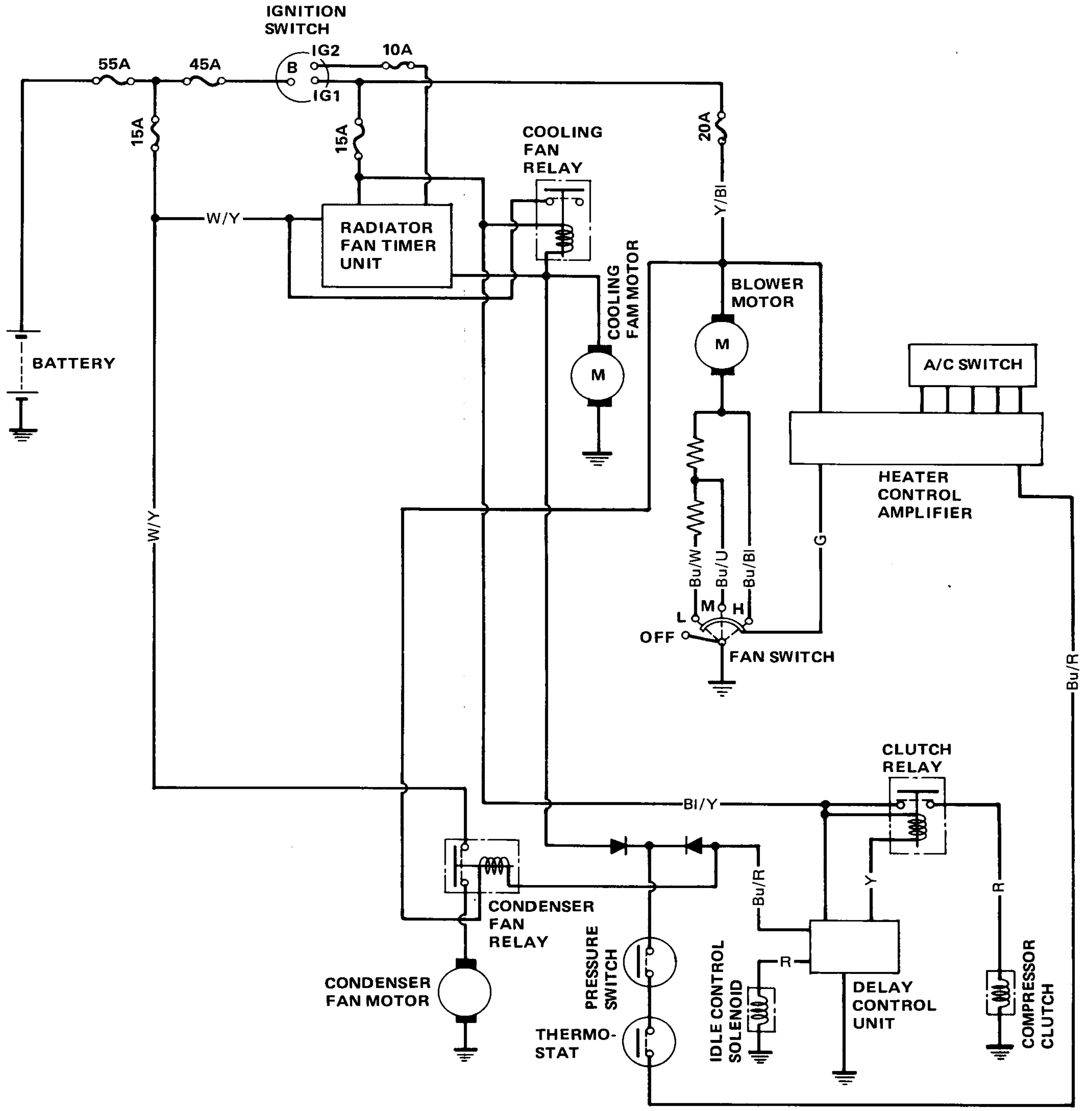
CONDENSER
Replacement, page 24-17

PRESSURE SWITCH
Interrupts current to compressor clutch when high pressure drops below 206 kPa (2.1 kg/cm^2, 28 psi), or when high pressure exceed 2,700 kPa (27.0 kg/cm^2, 384 psi), to prevent compressor damage if refrigerant/oil mix is lost from system.

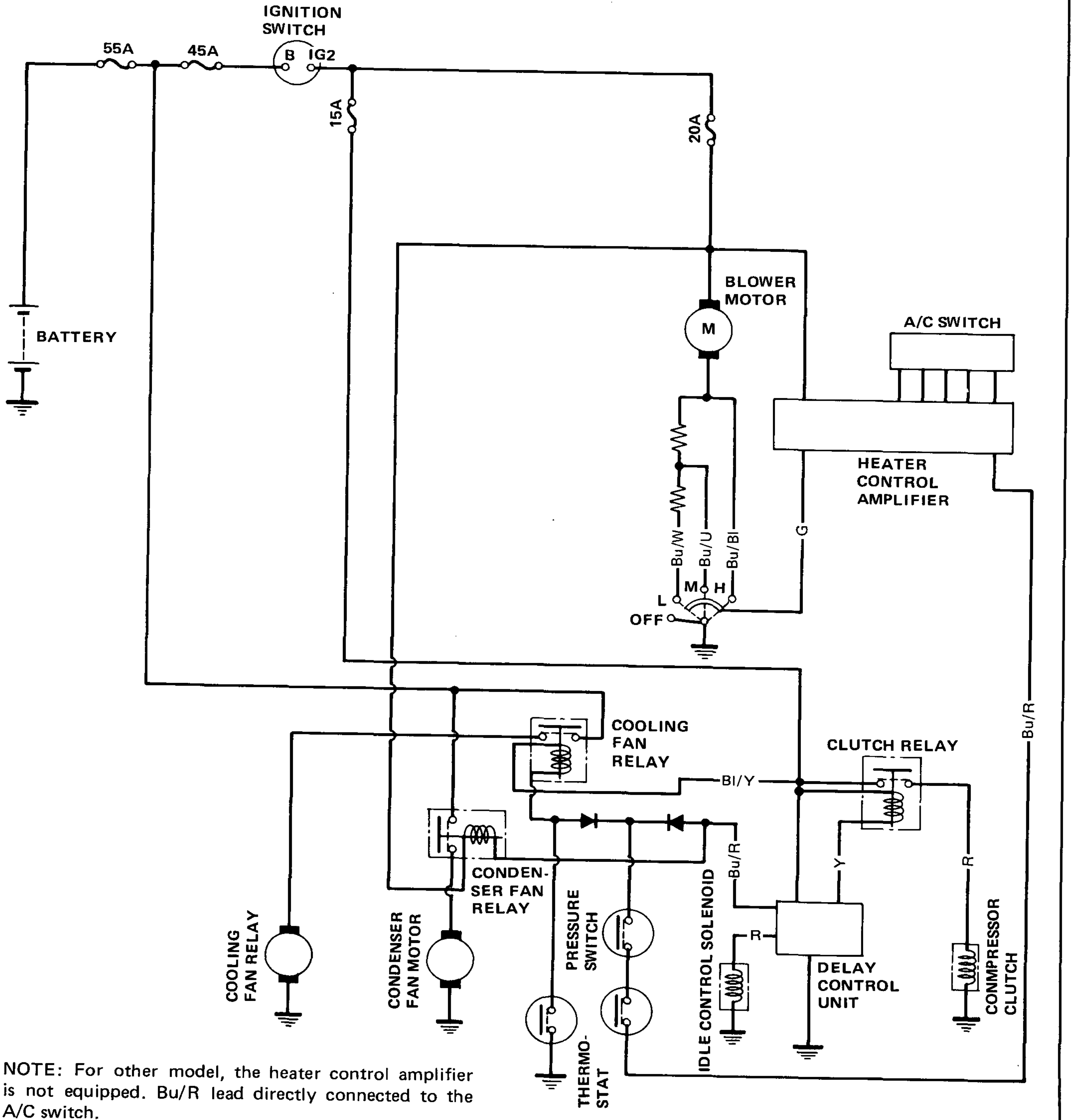
RECEIVER AND FILTER/DRYER

Wiring Diagram

Coupe (Canadian Model)


IGNITION SWITCH
55A
45A
B
IG2
IG1
10A
15A
15A
20A
COOLING FAN RELAY
W/Y
RADIATOR FAN TIMER UNIT
COOLING FAM MOTOR
M
Y/Bl
BLOWER MOTOR
M
BATTERY
A/C SWITCH
HEATER CONTROL AMPLIFIER
W/Y
Bu/W
Bu/U
Bu/Bl
G
L
M
H
OFF
FAN SWITCH
Bu/R
CLUTCH RELAY
Bl/Y
Y
R
Bu/R
CONDENSER FAN RELAY
CONDENSER FAN MOTOR
PRESSURE SWITCH
THERMO-STAT
IDLE CONTROL SOLENOID
R
DELAY CONTROL UNIT
COMPRESSOR CLUTCH

Coupe (Except Canadian Model)


IGNITION SWITCH
55A
45A
B
IG2
15A
20A
BATTERY
BLOWER MOTOR
M
A/C SWITCH
HEATER CONTROL AMPLIFIER
Bu/W
Bu/U
Bu/Bl
G
L
M
H
OFF
Bu/R
COOLING FAN RELAY
CLUTCH RELAY
Bl/Y
CONDEN-SER FAN RELAY
Bu/R
Y
R
R
COOLING FAN RELAY
CONDENSER FAN MOTOR
PRESSURE SWITCH
IDLE CONTROL SOLENOID
DELAY CONTROL UNIT
CONMPRESSOR CLUTCH
THERMO-STAT

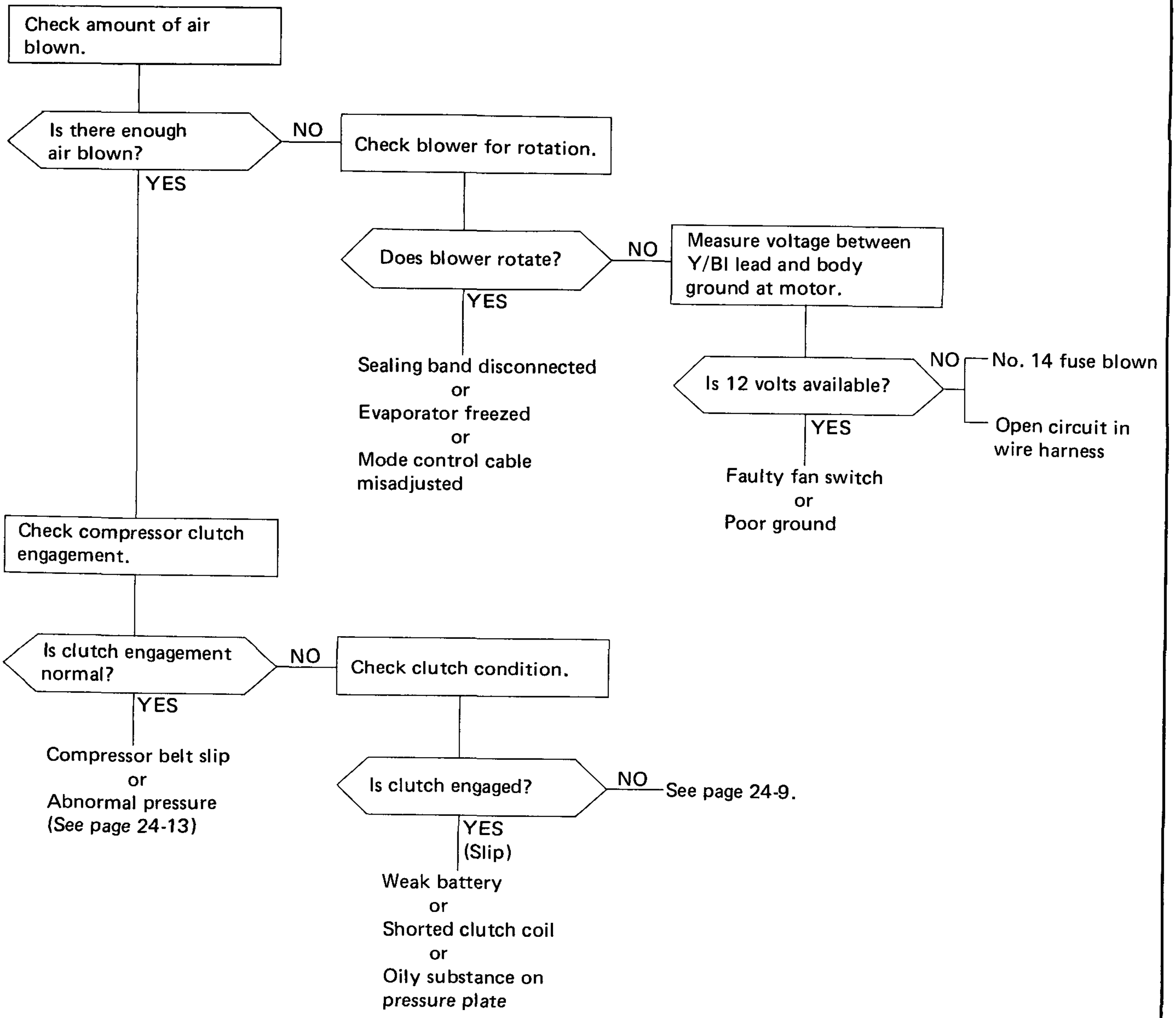
NOTE: For other model, the heater control amplifier is not equipped. Bu/R lead directly connected to the A/C switch.

Specifications

Item		Specification
Cooling capacity – Conditions: Compressor rpm Outside air temperature Outside air humidity Condenser air temperature Condenser air velocity Blower capacity		3,700 K cal/h (14,680 Btu/h) 1,800 rpm 27.5°C (81.5°F) 50% 35°C (95°F) 4.5 m/sec. 340 m^3/h (12,006 cu.ft/h)
Compressor	Type No. of cylinders Piston Displacement Max. rpm Lubricant/capacity	Radial type 4 150 cc/rev. (9.15 cu.in/rev.) 7,000 rpm SUNISO No. 5 GS/80 cc (2.7 US oz., 2.3 Imp. oz.)
Receiver Dryer	With dessicant	
Condenser		Corrugated fin type
Evaporator		Corrugated fin type
Blower	Type Motor input Speed control Max. capacity	Sirocco fan 165 W (12 V) 3 steps 400 m^3/h (14,125 cu.ft/h)
Temp. Control		Air-mix type
Compressor Clutch	Type Power consumption	Dry, single plate, V-belt-1A 48 W max. (12 V)
Refrigerant	Type Quantity	R-12 0.8 ± 0.05 kg (1.76 ± 0.11 lbs)

Troubleshooting

Faulty Cooling Systen


Check amount of air blown.
Is there enough air blown?
NO
YES
Check blower for rotation.
Does blower rotate?
NO
YES
Measure voltage between Y/Bl lead and body ground at motor.
Sealing band disconnected
or
Evaporator freezed
or
Mode control cable misadjusted
Is 12 volts available?
NO
YES
No. 14 fuse blown
Open circuit in wire harness
Faulty fan switch
or
Poor ground
Check compressor clutch engagement.
Is clutch engagement normal?
NO
YES
Check clutch condition.
Compressor belt slip
or
Abnormal pressure
(See page 24-13)
Is clutch engaged?
NO
See page 24-9.
YES
(Slip)
Weak battery
or
Shorted clutch coil
or
Oily substance on pressure plate

Troubleshooting

Electrical Troubleshooting

1. Compressor clutch isn't engaged, when A/C switch is turned on.

Check 45A main fuse. *1

Is it normal? — NO — Replace and recheck.

YES

Check No. 13 (15A) fuse.

Is it normal? — NO — Repalce and recheck.

YES

Check No. 14 (20A) fuse.

Is it normal? — NO — Replace and recheck.

YES

Disconnect wire harness from pressure switch.

Connect two lead to each other on wire harness side. *2

Disconnect wire harness from compressor clutch.

Turn ignition switch on. *3

Turn fan switch on.

Turn A/C switch on. *4

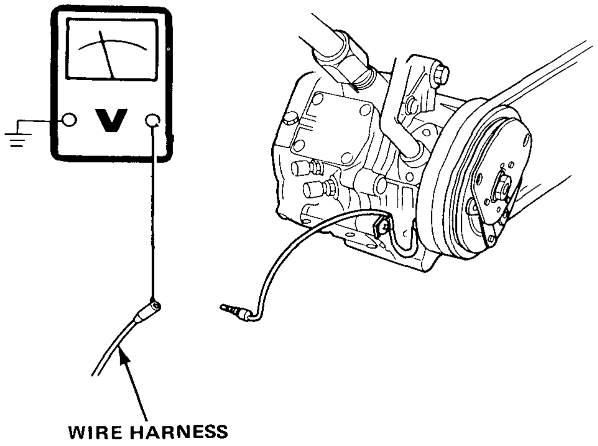
Measure voltage between R lead (positive) and body ground.

NOTE: About 0.5 seconds after turning A/C switch on.

Is 12 volts available? — NO — Measure voltage between Bl/Y lead (positive) and body ground at clutch relay. — See page 24-9.

YES

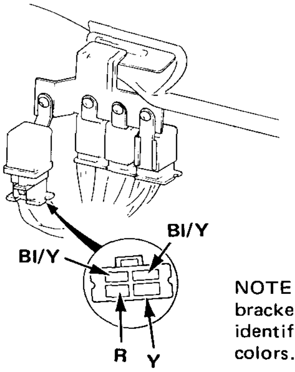
Faulty compressor clutch



NOTE: If the condenser fan is running when the A/C switch is turned on condenser fan relay, diode, heater control amplifier (Coupe) and A/C switch are OK. Check the clutch relay, delay control unit or related circuit.

From page 24-8

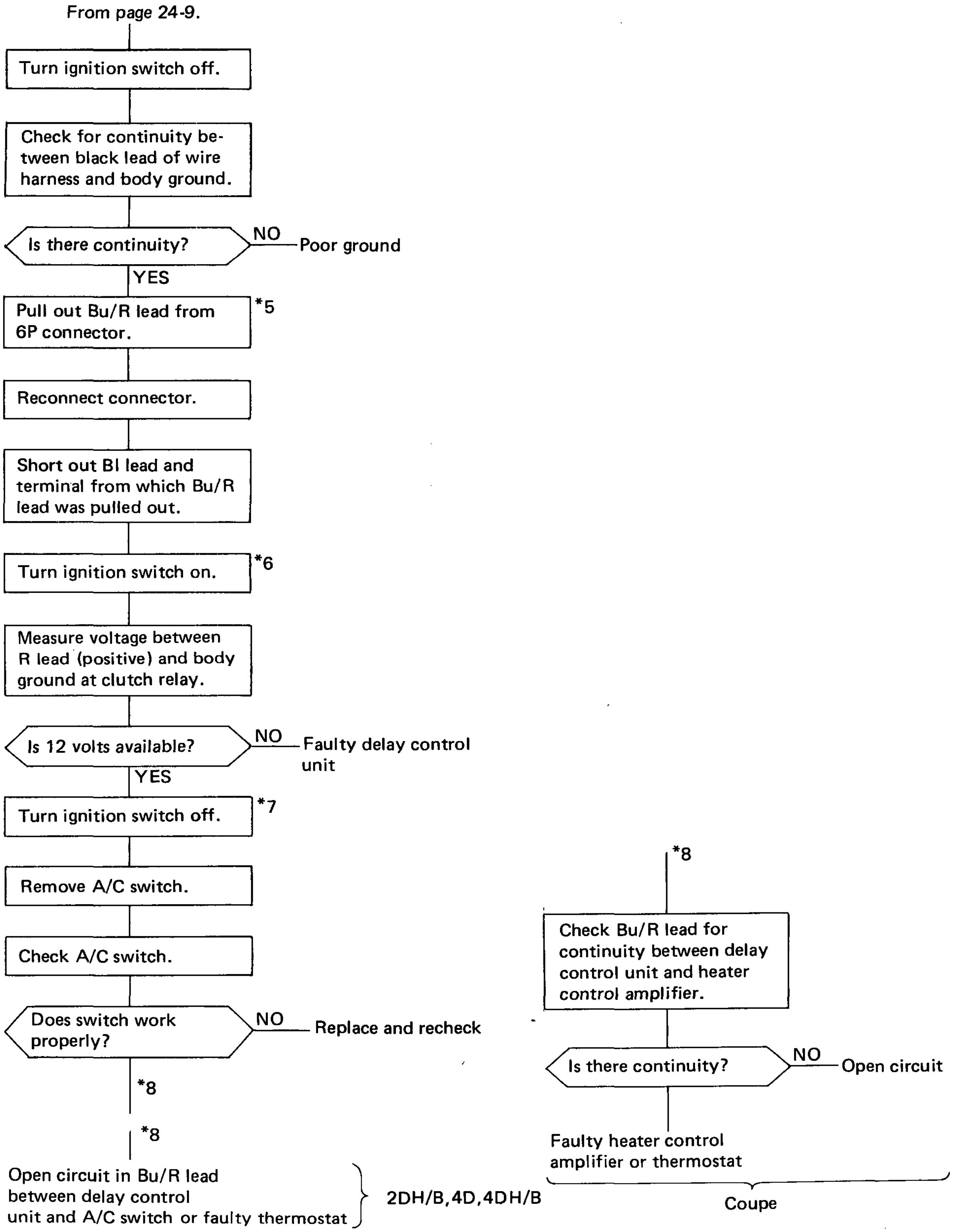
- Is 12 volts available?
  - NO — Open circuit between No. 13 fuse and clutch relay
  - YES
- Measure voltage between R lead (positive) and body ground at clutch relay.
- Is 12 volts available?
  - YES — Open circuit between clutch relay and compressor clutch.
  - NO
- Measure voltage between Bl/Y lead (positive) and body ground at clutch relay.
- Is 12 volts available?
  - NO — Open circuit between No. 13 fuse and clutch relay
  - YES
- Measure voltage between Y lead (positive) and body ground at clutch relay.
- Is voltage below about 1 volt?
  - YES — Faulty clutch relay
  - NO
- Turn off all switches.
- Disconnect wire harness from delay control unit.
- Turn ignition switch on.
- Measure voltage between Y lead (positive) of wire harness and body ground.
- Is 12 volts available?
  - NO — Open circuit between clutch relay and delay control unit
  - YES
- Measure voltage between Bl/Y lead (positive) of wire harness and body ground.
- Is 12 volts available?
  - NO — Open circuit between No. 13 fuse and delay control unit.
  - YES — See page 24-10.



NOTE: The relays on the brackets are identical. To identify, observe the lead colors.

Troubleshooting

Electrical Troubleshooting


From page 24-9.
Turn ignition switch off.
Check for continuity between black lead of wire harness and body ground.
Is there continuity?
NO
Poor ground
YES
Pull out Bu/R lead from 6P connector.
*5
Reconnect connector.
Short out Bl lead and terminal from which Bu/R lead was pulled out.
Turn ignition switch on.
*6
Measure voltage between R lead (positive) and body ground at clutch relay.
Is 12 volts available?
NO
Faulty delay control unit
YES
Turn ignition switch off.
*7
Remove A/C switch.
Check A/C switch.
Does switch work properly?
NO
Replace and recheck
*8
*8
Open circuit in Bu/R lead between delay control unit and A/C switch or faulty thermostat
2DH/B,4D,4DH/B
*8
Check Bu/R lead for continuity between delay control unit and heater control amplifier.
Is there continuity?
NO
Open circuit
Faulty heater control amplifier or thermostat
Coupe

2. Idle control solenoid doesn't operate, when A/C switch is turned on.

Perform *1—*2 of troubleshooting.

Disconnect wire harness from idle control solenoid.

Perform *3—*4 of troubleshooting.

Measure voltage between wire harness and body ground.

Is 12 volts available?

YES — Faulty idle control solenoid

NO — Turn off all switches.

Disconnect wire harness from delay control unit.

Check R lead for continuity between delay control unit and idle control solenoid.

Is there continuity?

NO — Open circuit

YES — Check for continuity between Bl lead of wire harness and body ground.

Is there continuity?

NO — Poor ground

Turn ignition switch on.

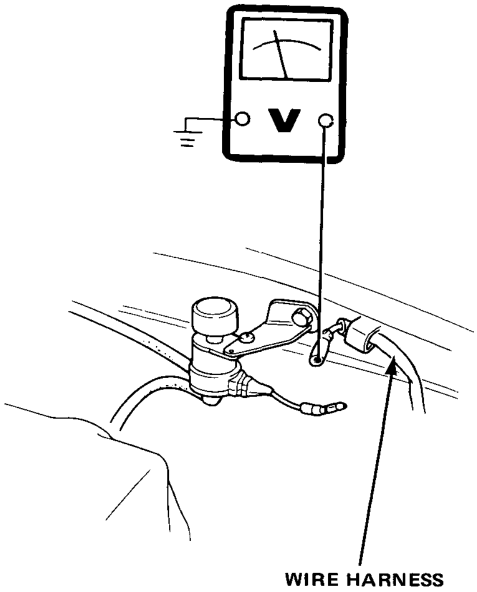
Measure voltage between Bl/Y lead (positive) of wire harness and body ground.

Is 12 volts available?

NO — Open circuit between No. 13 fuse and delay control unit

YES — Turn ignition switch off.

See page 24-12.



Troubleshooting

Electrical Troubleshooting

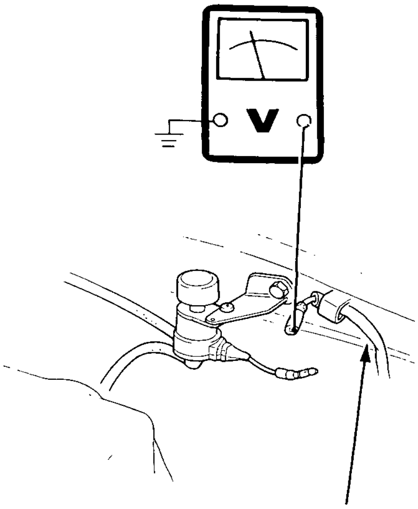
From page 24-11.

Perform *5—*6 of troubleshooting.

Measure voltage between wire harness (positive) and body ground.

Is 12 volts available? — NO — Faulty delay control unit

Perform *7—*8 of No. 1 troubleshooting.



3. A/C switch LED doesn't go on when A/C switch is turned on. However, air conditioner works properly (Coupe).

Remove A/C switch from heater control amplifier.

Make sure other wire harnesses are connected.

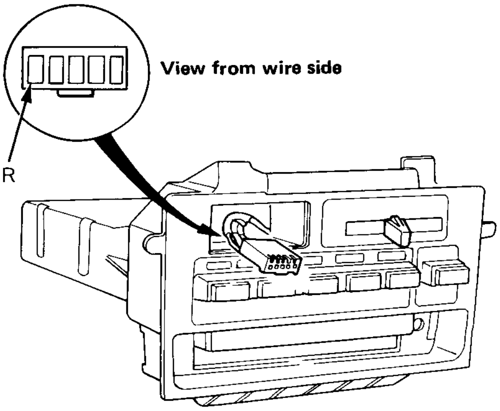
Turn ignition switch on.

Measure voltage between R terminal of 5P connector (positive) and body ground.

Is 12 volts available? — NO — Faulty heater control amplifier

YES

Faulty A/C switch



Compressor Troubleshooting

TEST RESULTS	RELATED SYMPTOMS	PROBABLE CASE	REMEDY
Discharge (high) pressure abnormally high (Test on page 24-27)	After stopping compressor, pressure drops to about 195 kPa (2 kg/cm^2, 28 psi) quickly, and then falls gradually.	Air in system	Evacuate system; then recharge. Evacuation: **page 24-28** Recharging: **page 24-29**
	Pressure does not return to normal when condenser is cooled by water.	Excessive refrigerant in system	Discharge refrigerant as required
	Reduced air flow through condenser	• Clogged condenser or radiator fins • Original and air conditioner fans not working properly	• Clean. • Check voltage and fan rpm.
	Line to condenser is excessively hot.	Restricted flow of refrigerant in system	Repair.
Discharge pressure abnormally low (Test on page 24-27)	Excessive bubbles in sight glass; condenser is not hot.	Insufficient refrigerant in system	Charge system.
	High and low pressures are balanced soon after stopping compressor.	• Faulty compressor discharge or inlet valve. • Faulty compressor seal	Replace compressor. Repair
	Outlet of expansion valve is not frosted; low pressure gauge indicates vacuum.	• Leaking thermostat • Frozen expansion valve • Faulty expansion valve	Repair or replace.
Suction (low) pressure abnormally low (Test on page 24-27)	Excessive bubbles in sight glass; condenser is not heated.	Insufficient refrigerant	Check for leaks. Charge as required.
	Expansion valve is not frosted and low pressure line is not cooled. Low pressure gauge indicates vacuum.	• Leaking thermostat • Frozen expansion valve • Faulty expansion valve	Replace expansion valve.
	Outlet temperature is low; no air flow.	Frozen evaporator	Run the fan with compressor off.
	Expansion valve frosted	Clogged expansion valve	Clean or replace
	Low pressure hose is cooler than expansion valve outlet and evaporator.	Collapsed or restricted low pressure hose	Clean, repair or replace.
Suction (low) pressure abnormally high (Test on page 24-27)	Low pressure hose and check joint are cooler than around evaporator.	• Expansion valve open too long • Loose thermostat (poor contact)	Repair or replace.
	Suction pressure is lowered when condenser is cooled by water (High pressure side also heated.)	Excessive refrigerant in system	Discharge refrigerant as necessary.
	High and low pressures are balanced too early when compressor is stopped.	• Faulty gasket • Faulty high pressure valve • Foreign particle stuck in high pressure valve	Replace compressor.

Service Tips

Service Tips

WARNING **When handling refrigerant (R-12):**

- **Always wear eye protection.**
- **Do not let refrigerant get on your skin or in your eyes. If it does:**
  - **Do not rub your eyes or skin.**
  - **Splash large quantities of cool water in your eyes or on your skin.**
  - **Rush to a physician or hospital for immediate treatment. Do not attempt to treat it yourself.**
- **Keep refrigerant containers (cans of R-12) stored below 40°C (100°F).**
- **Do not handle or discharge refrigerant in an enclosed area near an open flame: it may ignite and produce a poisonous gas.**

1. **Always disconnect the negative cable from the battery whenever replacing air conditioner parts.**
2. **Keep moisture and dust out of the system. When disconnecting any lines, plug or cap the fittings immediately; don't remove the caps or plugs until just before the lines are reconnected.**
3. **Before connecting any hose or line, apply a few drops of refrigerant oil to the seat of the O-ring or flare nut.**
4. **When tightening or loosening a fitting, use a second wrench to support the matching fitting.**
5. **When discharging the system, don't let refrigerant escape too fast; it will draw the compressor oil out of the system.**
6. **Add refrigerant oil after replacing the following parts:**

Condenser	**10 cm^3 (cc) (1/3 fl oz)**
Evaporator	**30 cm^3 (cc) (1 fl oz)**
Line or hose	**10 cm^3 (cc) (1/3 fl oz)**
Receiver	**10 cm^3 (cc) (1/3 fl oz)**

NOTE: When a new compressor is installed, drain 30 cm^3 (cc) (1 fl oz) of refrigerant oil thru the suction fitting on the compressor, unless you are also installing any of the above parts. Then, drain 30 cc for the compressor minus the amount shown for the other parts.

7. **Tighten nuts to the following torque:**

Line or hose dia. in (mm)	Torque N·m (kg-m, lb-ft)	Application
3/8 (9.53)	17 (1.7, 12)	• Sight glass • Condenser • Receiver • Receiver pipe
1/2 (12.7)	22 (2.2, 16)	• Discharge hose
5/8 (15.88)	32 (3.2, 23)	• Suction hose
(8 x 1.25 bolt)	30 (3.0, 21)	• Suction hose

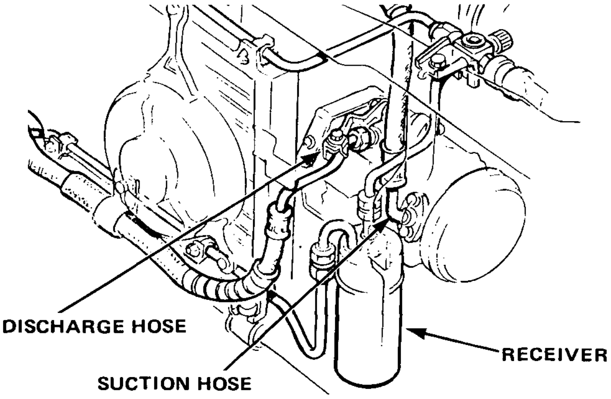
Compressor

Replacement

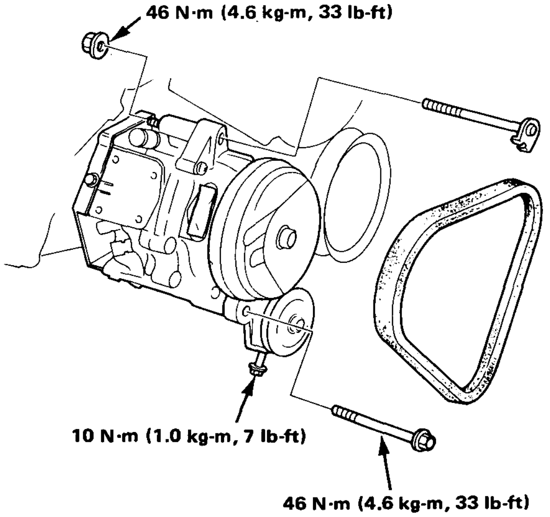
1. Run the engine at idle speed and turn on the air conditioner for a few minutes.
2. Disconnect the battery negative terminal.
3. Disconnect the compressor clutch lead.
4. Remove the left front under cover and the engine lower grille cowling.
5. Discharge the refrigerant very slowly from the system. (page 24-27).
6. Remove the receiver by disconnecting pipes.

   CAUTION: Cap the open fittings immediately to keep moisture and dirt out of the system.

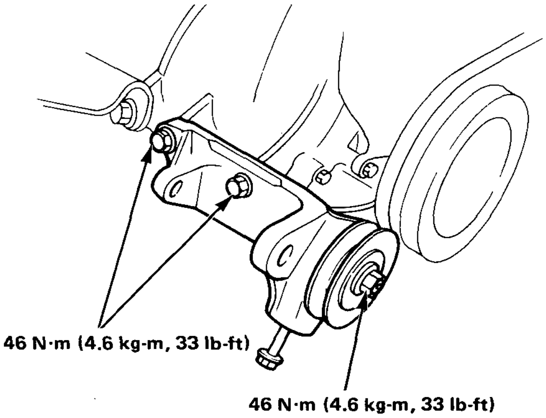
7. Disconnect the discharge hose and suction hose from compressor.



8. Loosen the belt adjusting bolt and pulley nut then lift the belt off the pulley.
9. Remove the nut and compressor mounting bolts.


46 N·m (4.6 kg-m, 33 lb-ft)
10 N·m (1.0 kg-m, 7 lb-ft)
46 N·m (4.6 kg-m, 33 lb-ft)

10. Remove the pulley bracket and remove the compressor from between the radiator and engine.



Install the compressor in the reverse order of removal, and:

- If a new compressor is installed, drain 30 cm^3 (cc) (1 fl oz.) of refrigerant oil through the suction fitting on the compressor.
- Adjust the belt
  Belt tension: 7–9 mm (9/32–11/32 in.) deflection when 98N (10 kg, 22 lbs) force is applied between pulleys.
- Charge the system (page 24-29).
- Test the performance (page 24-15)

CAUTION: Do not loosen the cylinder cover bolts on the compressor.

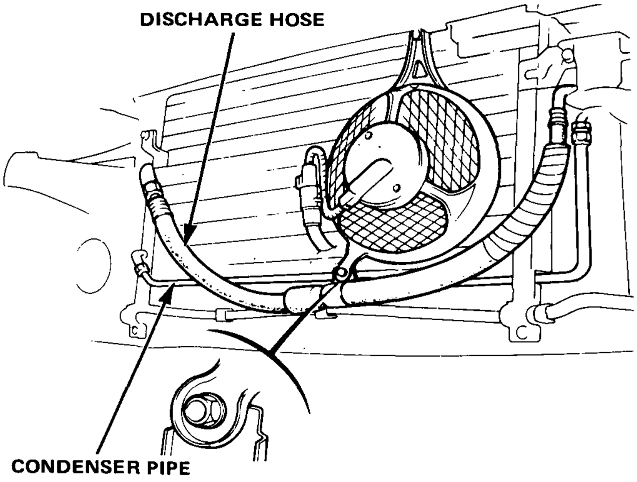
Condenser

Replacement

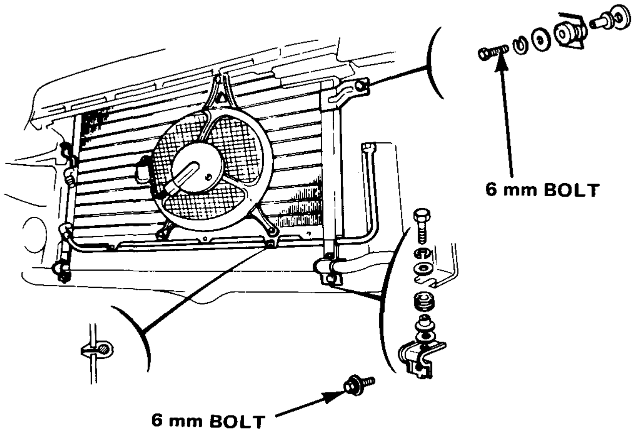
1. Disconnect the battery negative terminal.
2. Discharge the refrigerant (page 24-27)
3. Remove the front bumper and front grille (all except coupe).
4. Disconnect the discharge hose from the condenser.

   CAUTION:
   - **Cap the open fittings immediately to keep moisture and dirt out of the system.**
   - **Be careful not to damage the condenser fins and tubes.**

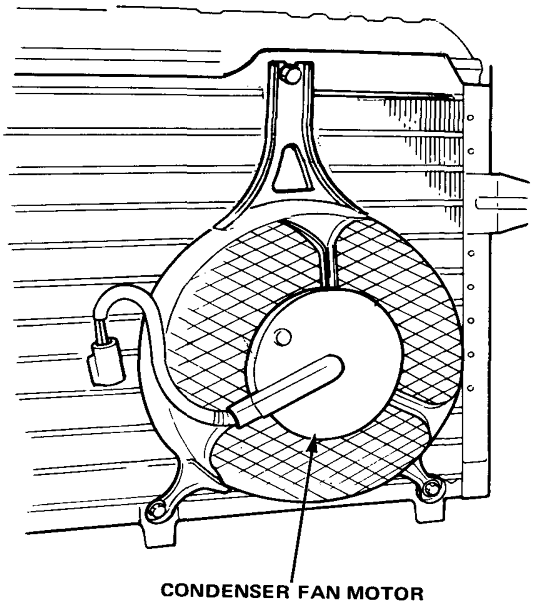
5. Remove the discharge hose clamp.
6. Disconnect the receiver hose.
7. Disconnect the wire harness from the condenser.



8. Remove the four 6 mm bolts and condenser.



Remove the condenser fan motor if necessary.



Install the condenser in the reverse order of removal, and:

- If a new condenser is installed, add 10 cm^3 (cc) (1/3 fl oz.) of refrigerant oil to it.
- Charge the system (page 24-29).
- Test the performance (page 24-15)

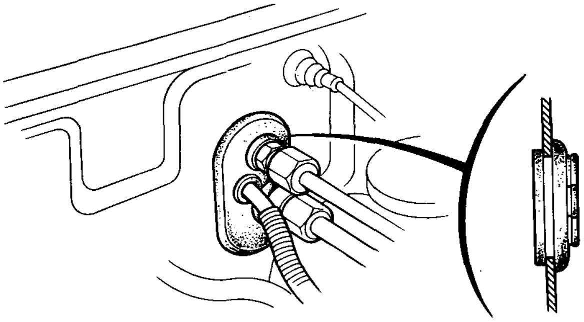
Evaporator

Replacement

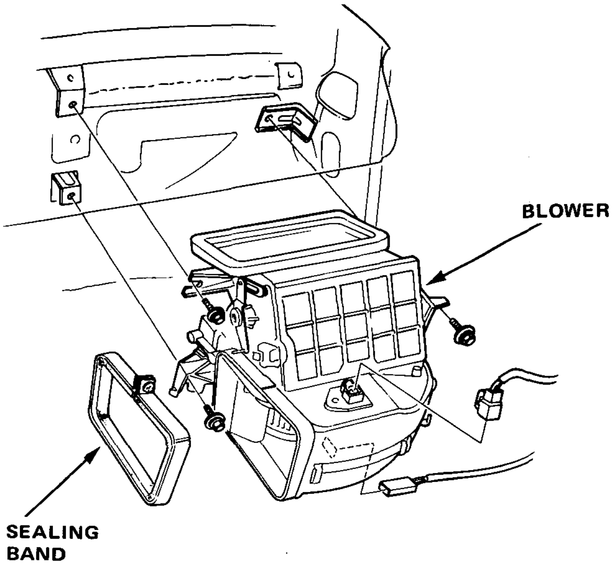
1. Disconnect the battery negative terminal.
2. Discharge the refrigerant (page 24-27)
3. Disconnect the receiver hose and suction hose from the evaporator.

   CAUTION: Cap the open fittings immediately to keep moisture and dirt out of the system.

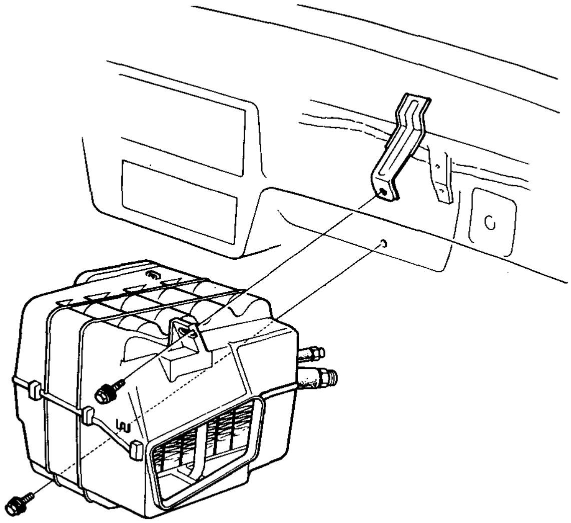
4. Remove the grommets.



5. Remove the glove box (2DH/B,4D) or passenger's tray (4DH/B).
6. Remove the glove box frame (2D H/B, 4D).
7. Disconnect the wire harnass from the thermostat.
8. Loosen the sealing band screw and slide the
9. Remove the blower mounting bolts and remove the blower.



10. Remove the evaporator.



Install the evaporator in the reverse of removal, and:

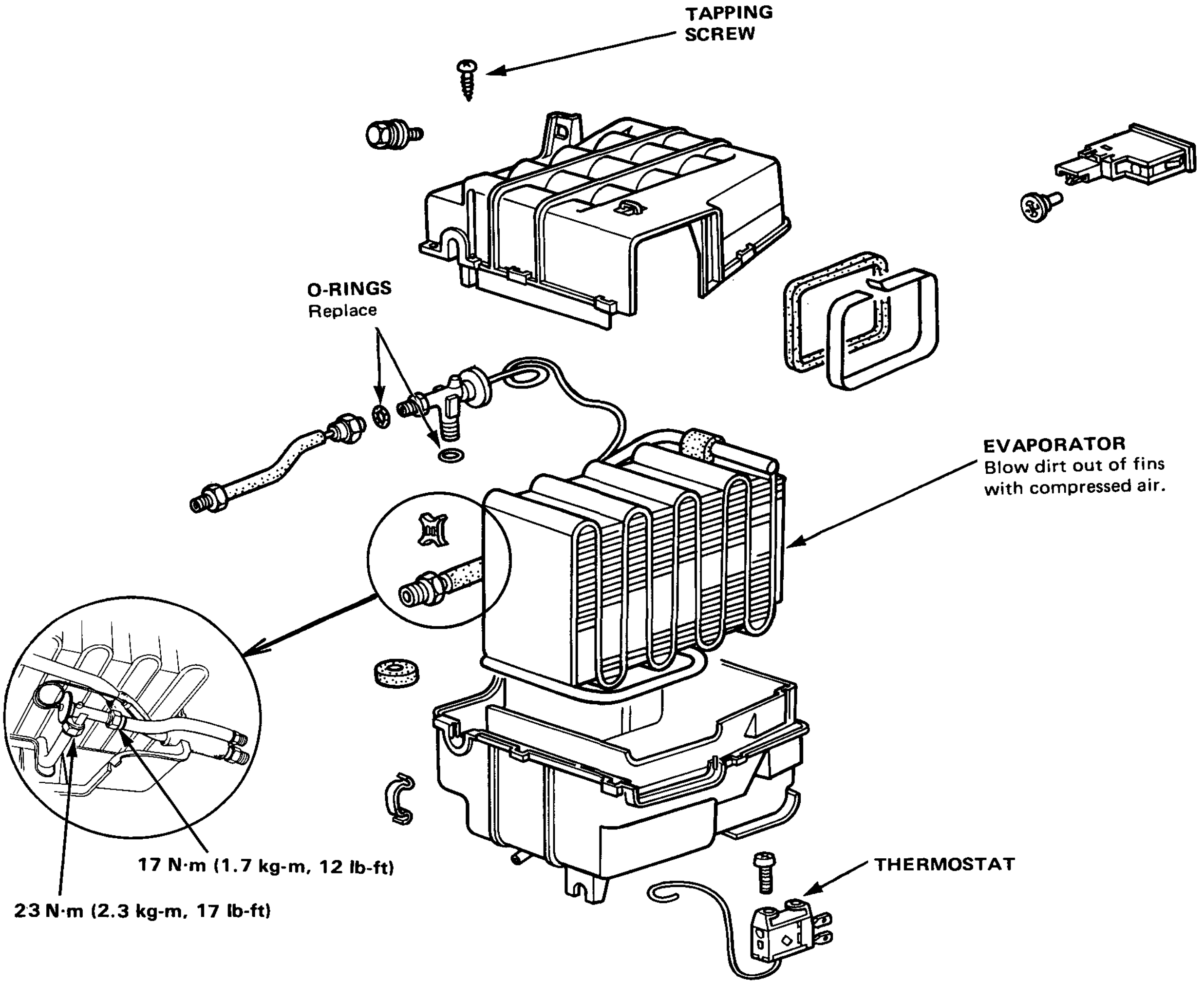
- If a new evaporator is installed, add 30 cm^3 (cc) (1 fl oz) of refrigerant oil to it before charging.
- Tighten the sealing band securely to prevent air leaks.
- Apply a sealant to the grommets.
- Reute the drain tube correctly.
- Charge the system (page 24-29).
- Test the performance (page 24-15).

Overhaul

1. Remove the self-tapping screws and clips from the housing.
2. Remove the capillary tube of the thermostat from the evaporator fins.
3. Separate the housings and remove the evaporator covers.
4. Remove the expansion valve, if necessary.

Assemble the evaporator in the reverse of disassembly, and:

- Install the expansion valve capillary tube against the suction line, and wrap it with a tape.
- Reinstall the thermostat capillary tube in its original position.
- Reassemble the upper and lower housings with the clips and screws, making sure there are no gaps between them.


TAPPING SCREW
O-RINGS
Replace
EVAPORATOR
Blow dirt out of fins with compressed air.
17 N·m (1.7 kg-m, 12 lb-ft)
23 N·m (2.3 kg-m, 17 lb-ft)
THERMOSTAT

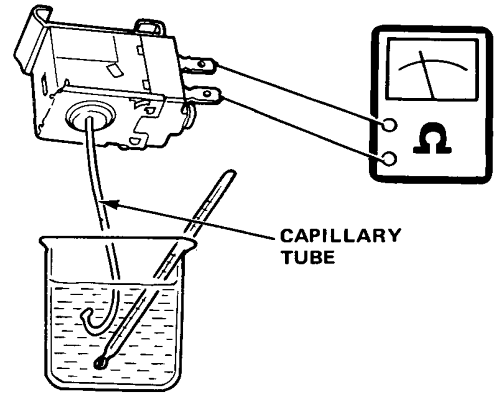
Thermostat Relay

Thermostat Testing

Dip the thermostat's capillary tube into a pan filled with ice water, and check for continuity.

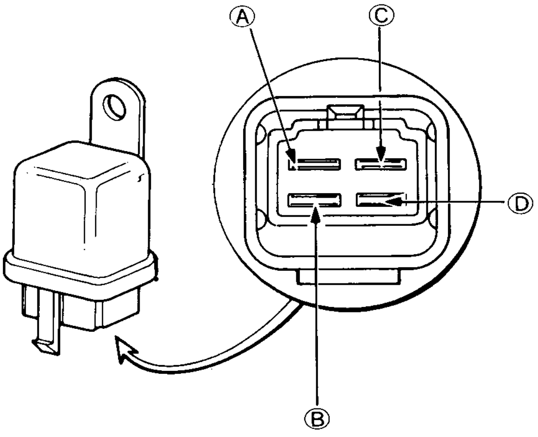
Cut-off . . . . –0.5°C – 1.5°C (31° – 35°F)
Cut-in . . . . 2.5°C – 5°C (37° – 41°F)

If cut-off or cut-in temperature is too low or too high, replace the thermostat.



Relay Testing

1. Check for continuity between terminals A and B. There should be no continuity.
2. Connect a 12V battery across terminals C and D. There should be continuity between terminals A and B.



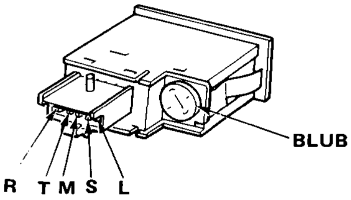
A/C Switch

Testing

Coupe

There should be continuity between S and T terminals when the switch is pushed in. There should be no continuity when the switch button is released (off).

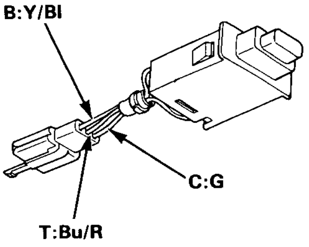
NOTE: The A/C switch contains an LED circuit and cannot be tested with ordinary circuit testers.



2DH/B, 4D, 4DH/B

Check for continuity according to the table below.

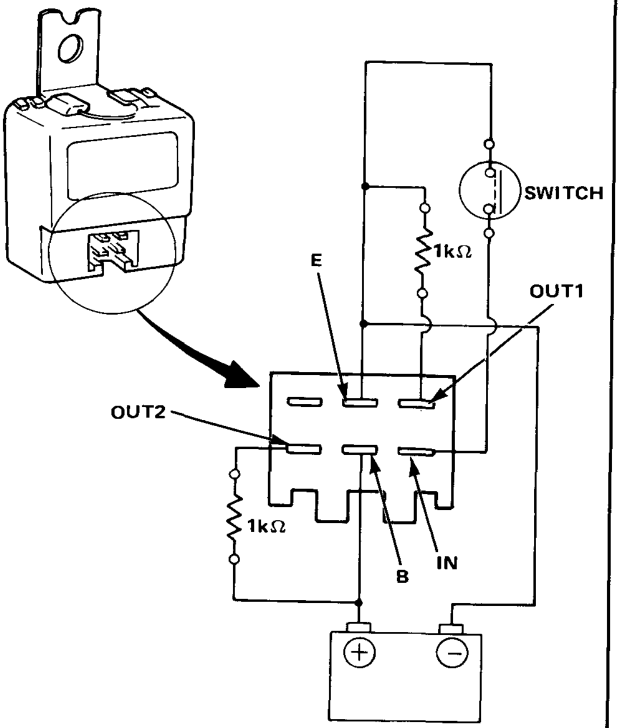
TERMINAL / POSITION	C	T		B
OFF		○	—⊗—◀—	○
ON	○—	—○—	—⊗—◀—	○
WIRE COLOR	G	Bu/R		Y/Bl



Delay Control Unit

Testing

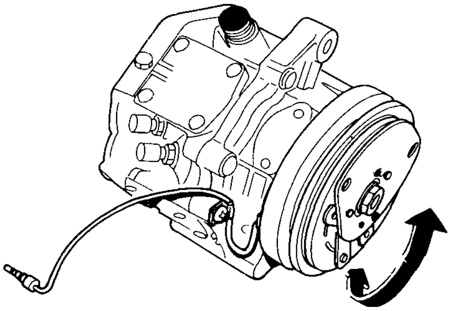
1. Connect a 12V battery, resistor and switch to the delay control unit, as shown below.
2. Connect the positive probe of a voltmeter to the OUT1 terminal and the negative probe to E terminal. Check that 12 volts is available when the switch is turned on.
3. Turn off the switch.
4. Connect the positive probe of the voltmeter to the OUT2 terminal and the negative probe to E terminal. Check that 12 volts appear the moment the switch is turned on, and that this voltage is lowered to 1 volt after approximately 0.5 seconds.



Compressor Clutch

Inspection

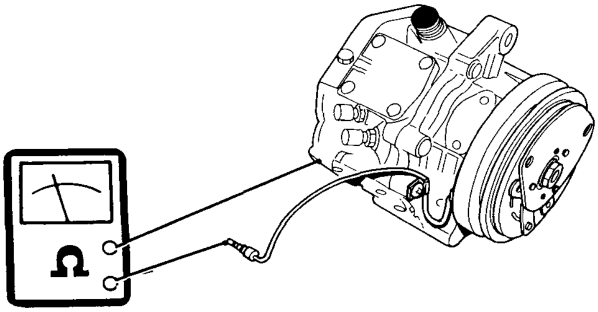
Check pulley bearing play and drag by rotating the pulley by hand. Replace the pulley with a new one if it is noisy or has excessive play and drag.



Check the resistance of coil.

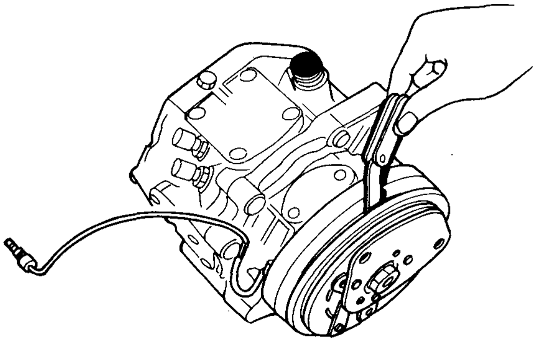
Coil Resistance:
3.0 ± 0.3Ω at 20°C (68°F)

If the resistance is not within specifications, replace the clutch coil with a new one.

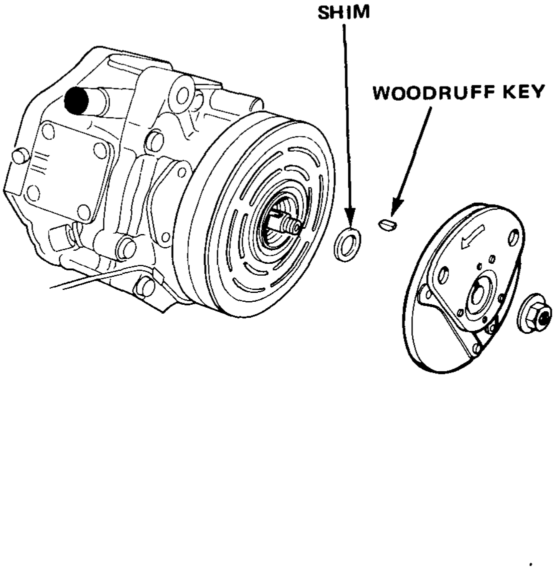


Measure the clearance between the pulley and pressure plate all the way around. If the clearance is not within specified limits, the pressure plate must be removed and shims added or removed as required.

Pulley to Pressure Plate Clearance:
0.3–0.6 mm (0.012–0.024 in.)



NOTE: The shims are available in six sizes: 0.1 mm, 1.0 mm, 1.25 mm, 1.5 mm, 1.75 mm and 2.0 mm of thickness. 0.1 mm shim is used for minor adjustment.

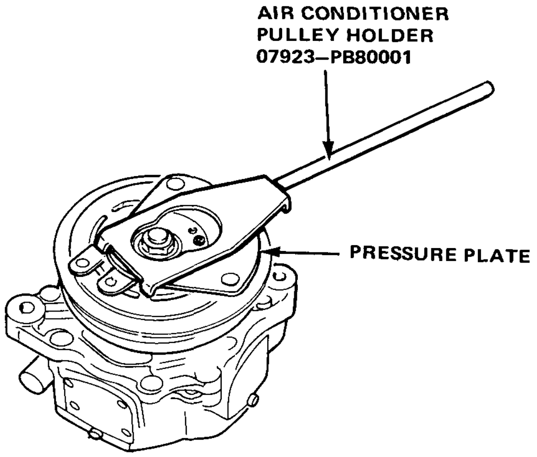


Overhaul

1. Remove the nut while holding the pressure plate with the tool shown.

   CAUTION: Be careful not to compress the spring excessively.

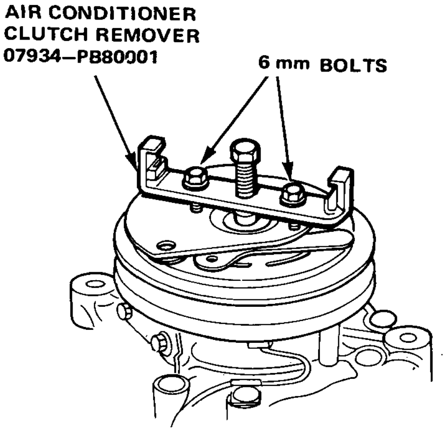
   Use the tool to hold the pressure plate.


AIR CONDITIONER
PULLEY HOLDER
07923–PB80001
PRESSURE PLATE

2. Install the clutch remover tool and two 6 mm bolts on the pressure plate, and remove it by screwing the center bolt.

   CAUTION: Use only special tool to remove the pressure plate. If it is not used the clutch damage may result.

   NOTE: Tighten the 6 mm bolts equally, so the tool is installed parallel to the pressure plate.

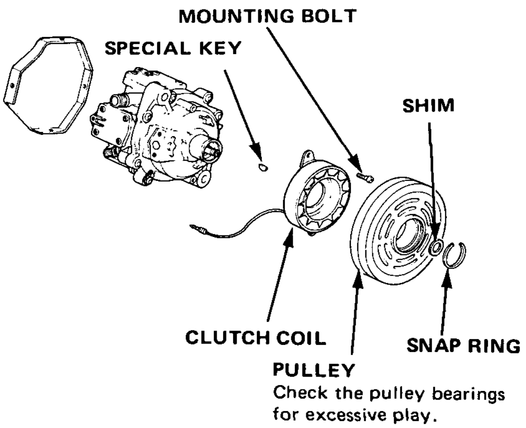

AIR CONDITIONER
CLUTCH REMOVER
07934–PB80001
6 mm BOLTS

3. Use snap ring pliers to take off the snap ring, then remove the pulley from the shaft with a 2 or 3 jaw puller.

   CAUTION: When removing the snap ring, be careful not to damage the aluminum compressor snout.

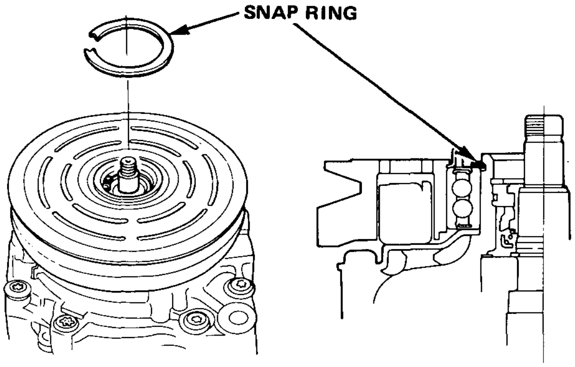
4. Unscrew the clutch coil mounting bolt by using a TORX DRIVER BIT (07703–0010200), then remove the clutch coil.

   NOTE: It's not necessary to remove the clutch wire clamp; just pry it up enough to remove the wire.


MOUNTING BOLT
SPECIAL KEY
SHIM
CLUTCH COIL
SNAP RING
PULLEY
Check the pulley bearings for excessive play.

Assemble the clutch in the reverse order of disassembly, and also:

- Install the sanp ring with its chamfered side facing out.
- When installing the snap ring, be careful not to damage the alminum compressor snout.



- Tighten the hub nut to specified torque.

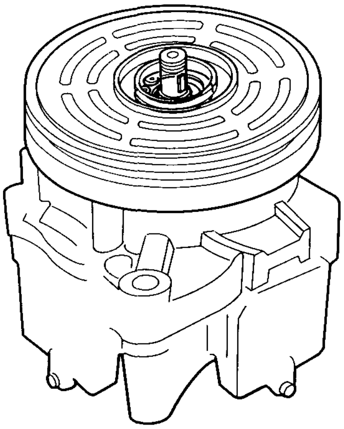
  TORQUE: 4.0–4.5 kg-m (32–35 ft-lb)
- Recheck the pulley to pressure plate clearance and adjust if necessary.

Compressor Shaft Seal

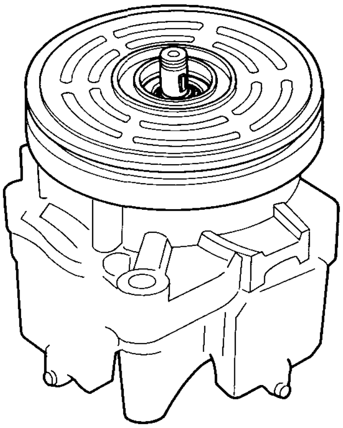
Shaft Seal Assembly Removal

NOTE: Make sure that the suction and discharge joints are plugged with the caps.

1. Remove the pressure plate.
   NOTE: Removal of the clutch pulley and coil is not necessary.
2. Remvoe the 32 mm snap ring.

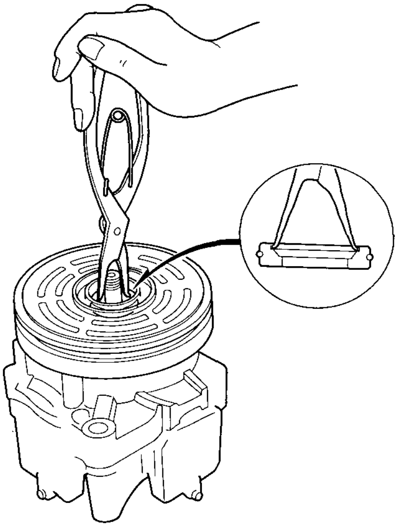


3. Remove the woodruff key from the key way.
   NOTE: If the woodruff key is reused, be careful not to damage the key.
4. Remove the shim(s).
   NOTE: After removing the shim(s), place it in a parts rack so it not scattered and lost.

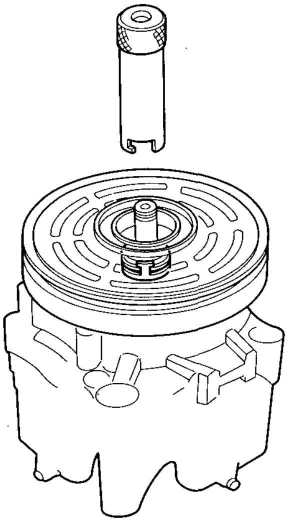


5. Hook the tip of the special tool (modified snap ring pliers) on the slot of the seal seat.
6. Pull out the seal seat.

   CAUTION: Move the tool in parallel with the compressor shaft. Do not damage the compressor.



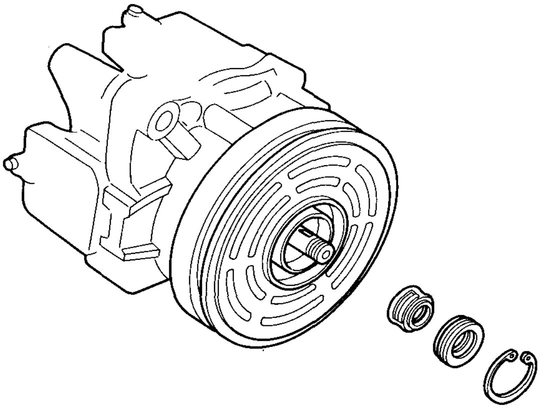
7. Insert the sahft seal remover into the compressor aligning the cutout of the remover with the metal pawl of the seal case.
8. Rotate the remover clockwise or counterclockwise to make sure that the cutout is engaged with the metal pawl.



9. Press the remover until bottoms, then turn it counterclockwise as far as it will go.
10. Withdraw the remover.
11. Lay down the compressor and clean the shaft seal contacting face of the compressor with cleaning solvent.

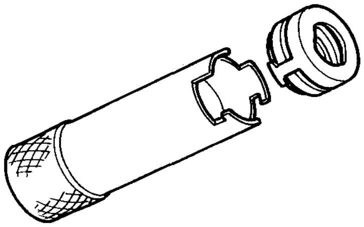
CAUTION:
- **Keep the cleaning solvent and dirt out of the compressor.**
- **Do not use the lint free cloth for cleaning.**
- **Do not use a compressed air for cleaning.**
- **Do not spill the refrigerator oil from the compressor. Refill the same amount of the oil if the oil is spilled out.**

NOTE: Install the shaft seal assembly after the cleaning solvent is dried out.

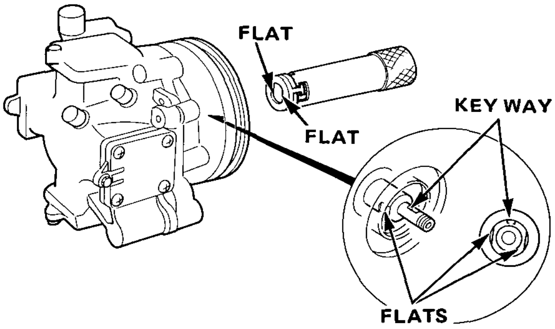


Shaft Seal Assembly Installation

1. Clean the new shaft seal with cleaning solvent thoroughly.
2. Lublicate the shaft seal with refrigerator oil (SUNISO 5GS) and install it on the shaft seal remover.
   NOTE:
   - Use only clean refrigerator oil.
   - Do not touch the sealing surfaces of the shaft seal after lubricated.



3. Liberally lubricate the compressor shaft with refrigerator oil.
4. Install the shaft seal onto the compressor shaft aligning the seal case flats with the shaft flats.



(cont'd)

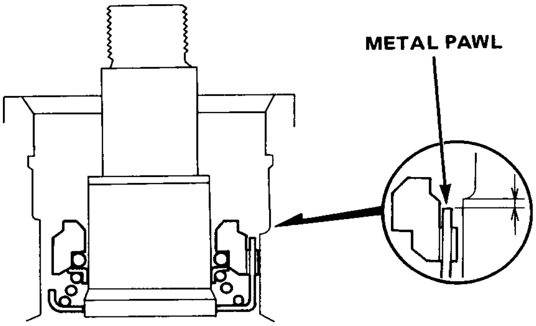
Compressor Shaft Seal

Shaft Seal Assembly Installation (cont'd)

5. Press the remover until bottoms, then turn it counterclockwise as far as it will go.
   NOTE: The remover will be lowered when the falts are aligned.

6. Turn the remover clockwise, then pull out.

7. Make sure that the metal pawl of the seal case is approx. 0.5 mm below the compressor shoulder at least as shown.



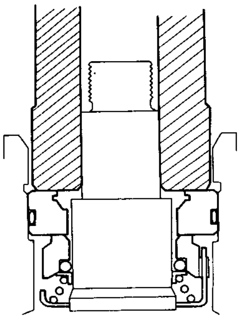
8. Check the inside diameter of the compressor for freedom of score marks or foreign particles.

9. Clean the seal seat with cleaning solvent, then lubricate the seal seat with refrigerator oil (SUNISO 5GS).
   NOTE:
   - Use only clean refrigerator oil.
   - Do not touch the sealing surface of the seal seat after lubricated.

10. First slide the seal seat into the compressor by hand as far as possible.

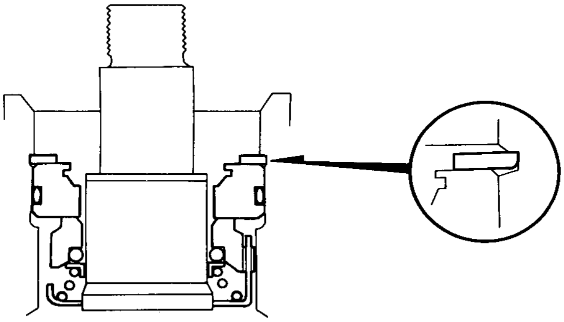
11. Press the seal seat with the grip side of the remover.

    CAUTION: Be careful not to damage the compressor.

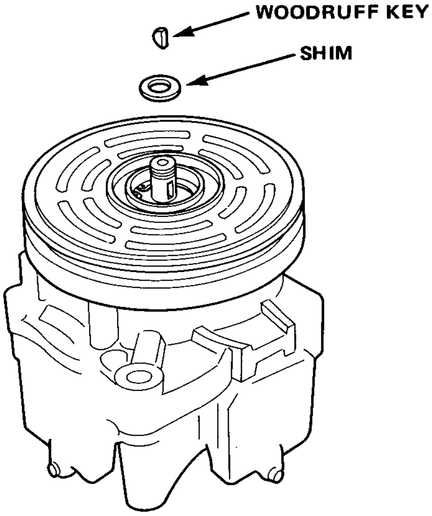


12. Install the snap ring with the chamfered side inside.

13. Press the snap ring with the grip side of the remover.



14. Install the shim and woodruff key.



15. Evacuate and charge the compressor, then perform the leak test.

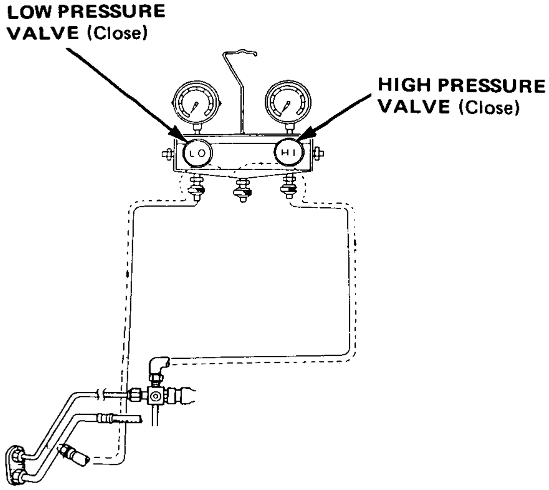
16. Install the pressure plate. Measure the clearance between the pulley and pressure plate all the way around. If the clearance is not within the specified limits, the shim(s) must be added or removed as required.

Pressur Test, Discharge Procedure

Pressure Test

1. Connect the gauges as shown.
2. Close both high and low pressure valves.
3. Test with the hood up, doors and windows open, temperature lever on COLD (left end), VENT button on and fan maximum high speed.
4. Leave the air conditioner on about 10 min. The sight glass should be free of bubbles.

   NOTE: Run the engine at 1,500 rpm.
5. The high pressure reading should be about 2,250 kPa (22.5 kg/cm^2, 320 psi).
   Low pressure reading: about 250 kPa (2.5 kg/cm^2, 36 psi)
   If the readings are not correct, refer to the troubleshooting chart on page 24-00.



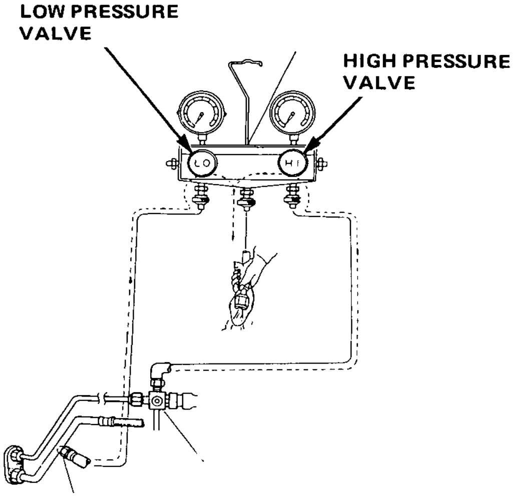
Discharge Procedure

WARNING

- **Keep away from open flames. The refrigerant, although nonflammable, will produce a poisonous gas if burned.**
- **Work in a well-ventilated area. Refrigerant evaporates quickly, and can force all the air out of a small enclosed area.**

1. Connect the gauges as shown.
2. Disconnect the center hose of the gauge set and place the free end in a shop towel.
3. Slowly open the high side manifold valve slightly to let refrigerant flow from the center hose only. Do not open the valve too wide. Check the shop towel to make sure no oil is being discharged with the refrigerant.

   CAUTION: **If refrigerant is allowed to escape too fast, compressor oil will be drawn out of the system.**
4. After the high pressure gauge reading has dropped below 1,000 kPa (10.0 kg/cm^2, 142 psi), open the low side valve to discharge both high and low sides of the system.
5. Note the gauge readings and, as system pressure drops, gradually open both high and low side valves fully until both gauges indicate 0 kPa (0 kg/cm^2 0 psi).



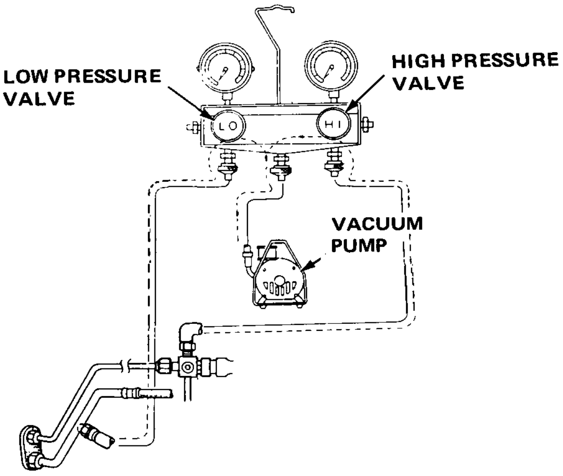
System Evacuation, Leak Testing

System Evacuation

NOTE: When an A/C System has been opened to the atmosphere, such as during installation or repair, it must be evacuated using a vacuum pump. (If the system has been open for several days, the receiver-dryer should be replaced).

1. Attach a gauge set and pump as shown, connecting the center charging hose to the pump inlet.
2. Start the pump, then open both gauge valves. Run the pump for about 15 minutes. Close the valves and stop the pump. The low gauge should indicate above 700 mm Hg (27 in-Hg) and remain steady with the valves closed.

   NOTE: If low pressure does not reach more than 700 mm Hg (27 in-Hg) in 15 minutes, there is probably a leak in the system. Check for leaks, and repair (see Leak Test below).
3. If there are no leaks, open the valves and continue pumping for at least another 15 minutes, then close both valves, stop the pump and disconnect it from the center charging hose.

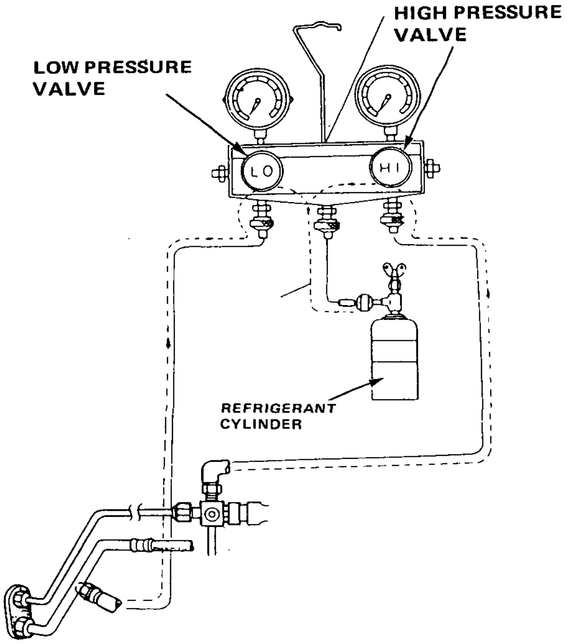


Leak Testing

WARNING When handling refrigerant (R-12):

- **Always wear eye protection.**
- **Do not let refrigerant get on your skin or in your eyes. If it does:**
  - **Do not rub your eyes or skin.**
  - **Splash large quantities of cool water in your eyes or on your skin.**
  - **Rush to a physician or hospital for immediate treatment. Do not attempt to treat it yourself.**
- **Keep refrigerant containers (cans of R-12) stored below 40°C (100°F).**
- **Keep away from open flame. Refrigerant, although non-flammable, will produce poisonous gas if burned.**
- **Work in well ventilated area. Refrigerant evaporates quickly, and can force all the air out of a small, enclosed area.**

1. Attach a refrigerant supply and gauge set as shown, with all valves closed. Then open the refrigerant supply valve on the can.
2. Loosen the center charging hose fitting at the gauge to purge any air from the hose, until it hisses for a few seconds, then tighten it again.
3. Open both gauge valves to charge the system to about 100 kPa (1.0 kg/cm^2, 14 psi), then close the supply valve.
4. Check the system for leaks using a leak detector.
5. If you find leaks that require the system to be opened (to repair or replace hoses, fittings, etc.), release any charge in the system according to the Discharge Procedure on the previous page.
6. After checking and repairing leaks, the system must be evacuated (see System Evacuation above).



System Charging

WARNING Always wear eye protection when charging the system.

The A/C system may be charged with refrigerant by either Vapor or Liquid method:

CAUTION: If you overcharge the system, the compressor will be damaged.

VAPOR CHARGING, through the low side:

1. Connect a gauge set and refrigerant can (right side up) as shown, with the gauge valves closed. Purge air from the charging hose by opening the refrigerant valve, then, loosening the center connector at the gauge, letting it hiss for a few seconds, and tightening it.
2. Open the low gauge valve [adjust it as necessary so pressure does not exceed 415 kPa (4.15 kg/cm^2, 60 psi) while charging].
3. Start the engine and switch the air conditioner fan on high.

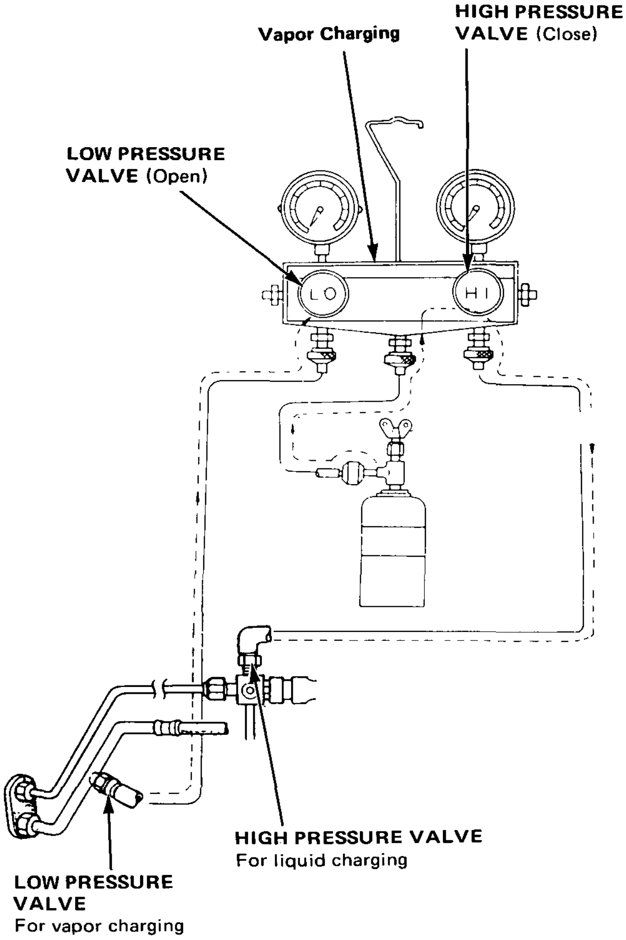
   NOTE: Run the engine below 1,500 rpm.
4. Keep the refrigerant can right side-up. Charge the system with 750–850 g (26–30 oz.) of refrigerant until sight glass is free of any bubbles, indicating a full charge. Do not exceed 1,336 kPa (13.4 kg/cm^2 190 psi).
5. When fully charged, close the gauge valves, then the valve on the can. Slowly disconnect the refrigerant hose from the center gauge connection to allow excess refrigerant to escape. Quickly remove the gauges from the system to minimize refrigerant loss.

LIQUID CHARGE through the high pressure side:

Following the charging station manufacturer's instructions, charge the system with 750–850 g (26–30 oz.) of refrigerant.

WARNING Do not use disposable cans to charge through the high pressure side of the system. System pressure could transfer into the can causing it to explode. Use only the bulk supply of refrigerant from the charging station.

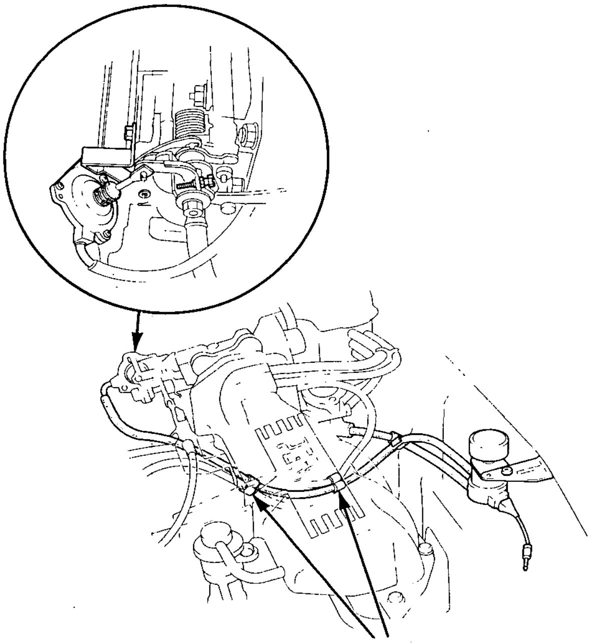
CAUTION: If you run the engine during liquid charge, the compressor will be damaged.



Idle Boost

Replacement

PGM-FI Model shown



Idle Adjustment

After charging, adjust the idle speed with the air conditioner on:

- Apply the parking brake and block the wheels.
- Headlights . . . . OFF
- A/C temperature lever . . . . . . COLD (left end)
- Vent and RECIRC buttons . . . ON
- Fan switch . . . . HI (right end)
- Gearshift – Manual . . . . Neutral
  Automatic . . . . . In gear

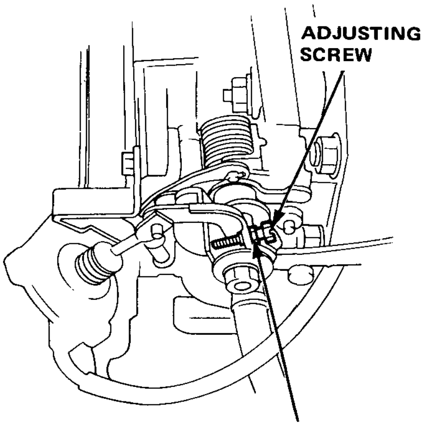
1. *Start the engine and warm it up to normal operating* temperature (when radiator fan comes on). Check the idle speed with the A/C OFF, and adjust it, if necessary.

   IDLE SPEED: Manual – 750 ± 50 rpm
   Automatic – 750 ± 50 rpm (in gear)

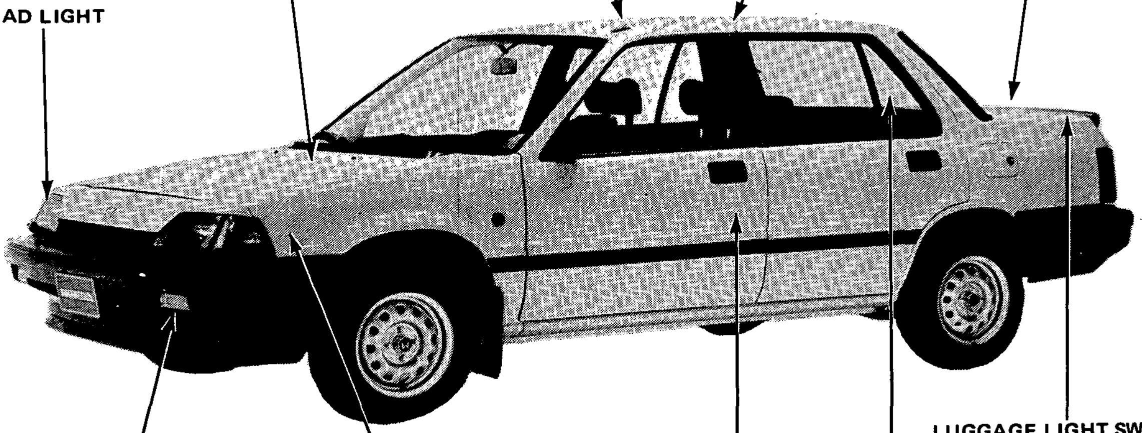
2. Turn the fan on HI, and check the idle speed again; it should be the same as with the fan OFF; if not, adjust it by turning the adjusting screw.

3. Turn the fan switch OFF and ON several times and make sure the idle speed does not change.

PGM-FI Model shown



Index



SUNROOF MOTOR
Replacement, pages 22-89 and 96
Testing, page 25-17

INTERIOR LIGHT SWITCH
Testing, page 25-11

FRONT WIPER MOTOR
Testing, page 25-9

TRUNK LIGHT SWITCH
Testing, page 25-12

HEAD LIGHT

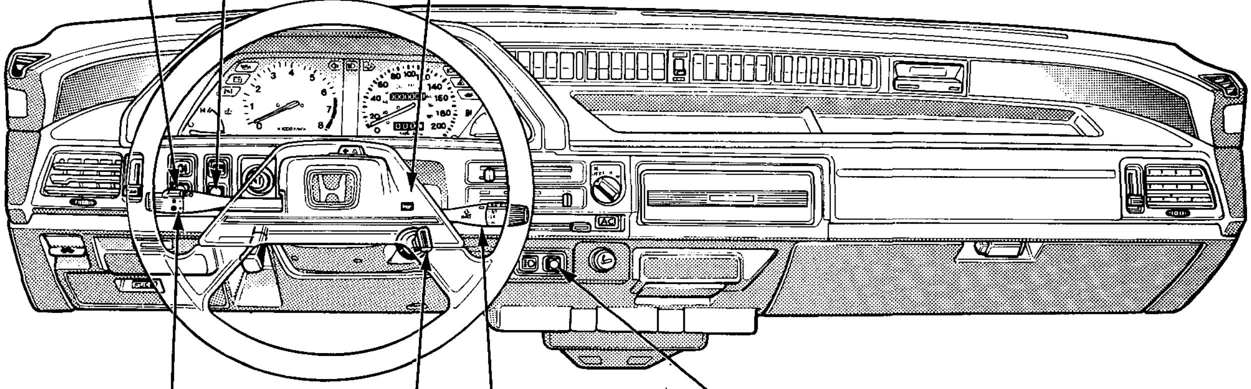
LUGGAGE LIGHT SWITCH
Testing, page 25-12

REAR WIPER MOTOR
Replacement, page 22-129
Testing, page 25-21

WINDSHIELD WASHER MOTOR
Replacement, page 22-130
Testing, page 25-21

DOOR SWITCH
Testing, page 25-12

FRONT TURN SIGNAL LIGHT



REAR FOG LIGHT
Testing, page 25-19

DEFROSTER SWITCH
Testing, page 25-11

HORN SWITCH
Testing, page 25-10

WIPER/WASHER SWITCH
Testing, page 25-8

HEADLIGHT WASHER & WIPER SWITCH
Testing, page 25-20

IGNITION SWITCH
Replacement, page 25-7
Overhaul, page 25-7
Testing, page 25-7

COMBINATION SWITCH (LIGHTING, TURN SIGNAL/ DIMMER)
Testing, page 25-8

SUNROOF SWITCH
Testing, page 25-17

DASH LIGHT BRIGHTNESS CONTROL
Replacement, pages 22-106 and107
Testing, page 25-15

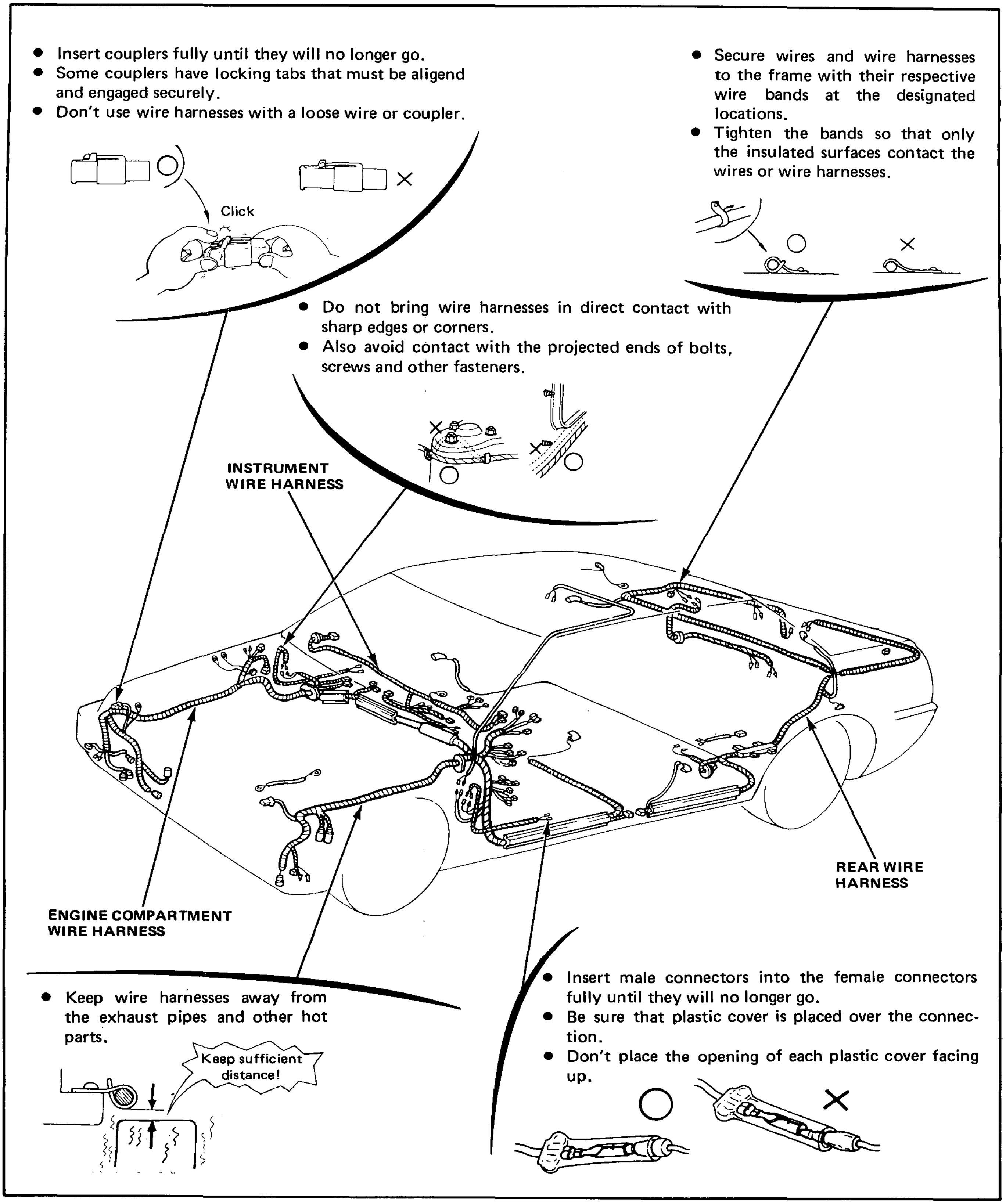
LIGHTS-ON WARNING SYSTEM
Troubleshooting, page 25-13

SEAT BELT WARNING SYSTEM
Troubleshooting, page 25-22

KEY-ON WARNING SYSTEM
Troubleshooting, page 25-25

DAY TIME RUNNING LIGHT SYSTEM
Testing, page 25-20

Wire Harness



- Insert couplers fully until they will no longer go.
- Some couplers have locking tabs that must be aligend and engaged securely.
- Don't use wire harnesses with a loose wire or coupler.

- Secure wires and wire harnesses to the frame with their respective wire bands at the designated locations.
- Tighten the bands so that only the insulated surfaces contact the wires or wire harnesses.

- Do not bring wire harnesses in direct contact with sharp edges or corners.
- Also avoid contact with the projected ends of bolts, screws and other fasteners.

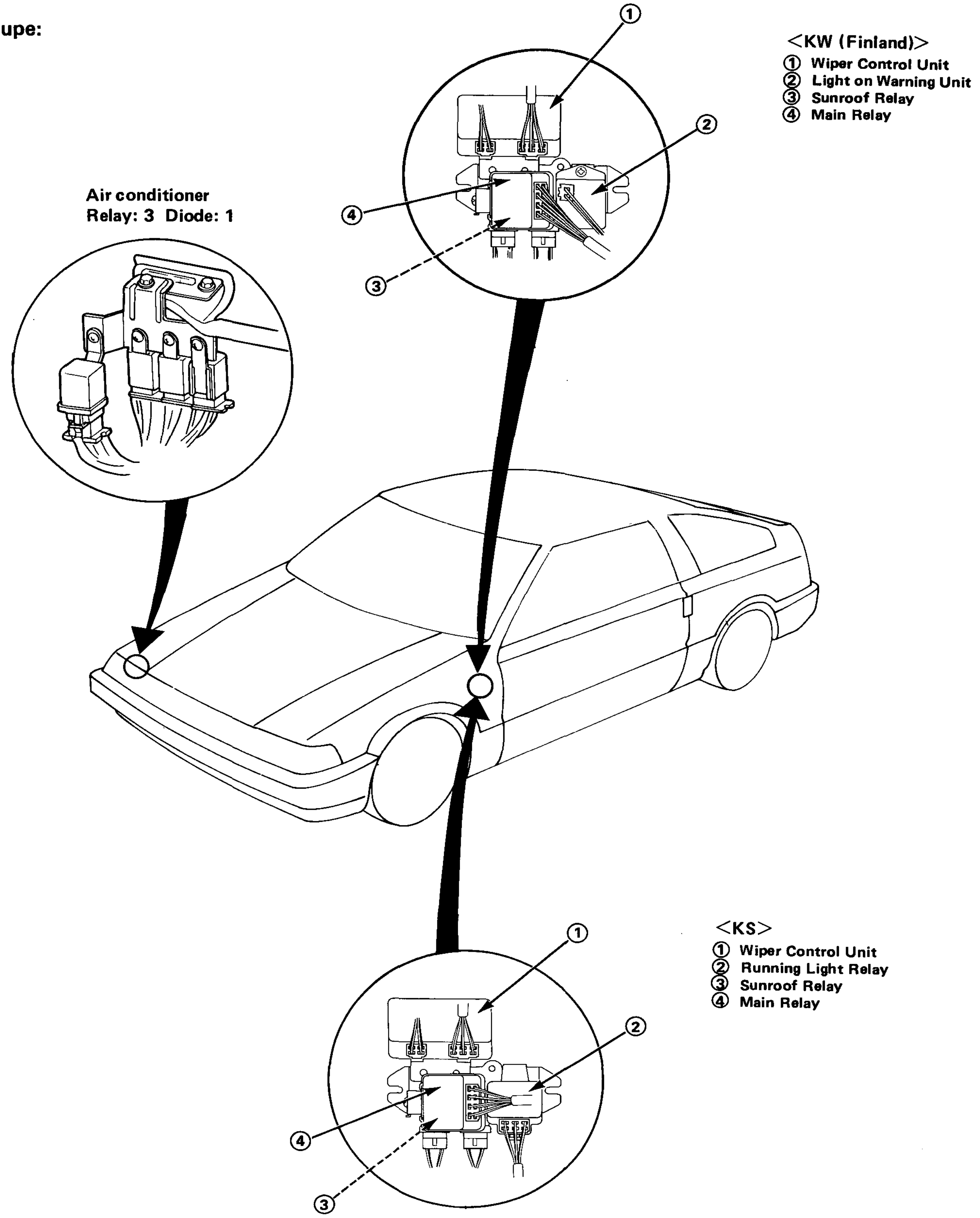
- Keep wire harnesses away from the exhaust pipes and other hot parts.

- Insert male connectors into the female connectors fully until they will no longer go.
- Be sure that plastic cover is placed over the connection.
- Don't place the opening of each plastic cover facing up.

Click
INSTRUMENT WIRE HARNESS
ENGINE COMPARTMENT WIRE HARNESS
REAR WIRE HARNESS
Keep sufficient distance!

Relays and Control Unit Locations

Coupe:


Air conditioner
Relay: 3 Diode: 1
①
②
③
④
①
②
③
④

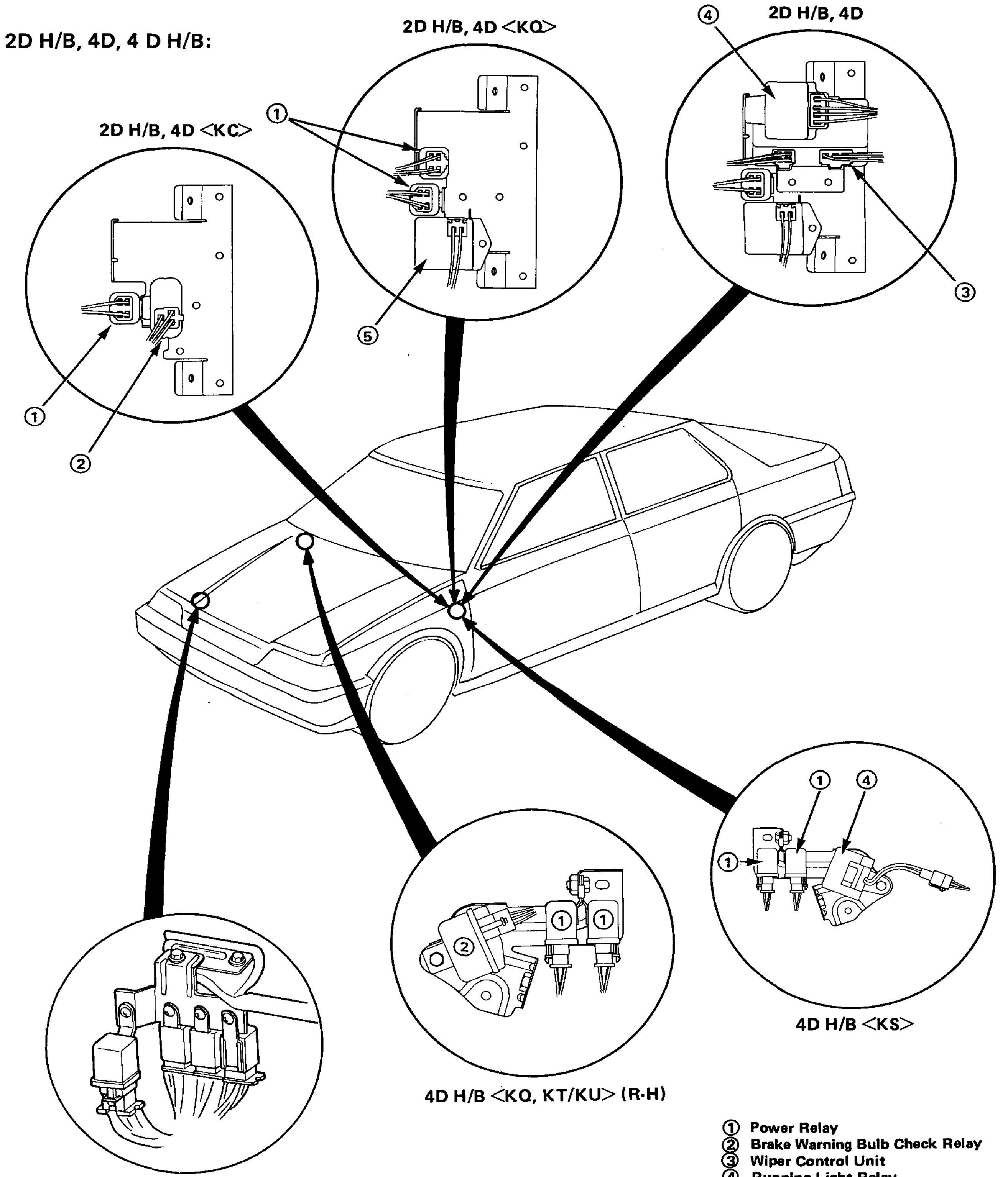
<KW (Finland)>

① Wiper Control Unit
② Light on Warning Unit
③ Sunroof Relay
④ Main Relay

<KS>

① Wiper Control Unit
② Running Light Relay
③ Sunroof Relay
④ Main Relay

Relays and Control Unit Locations


2D H/B, 4D, 4 D H/B:
2D H/B, 4D <KC>
①
②
2D H/B, 4D <KQ>
①
⑤
④
2D H/B, 4D
③
4D H/B <KS>
①
④
①
4D H/B <KQ, KT/KU> (R·H)
②
①
①

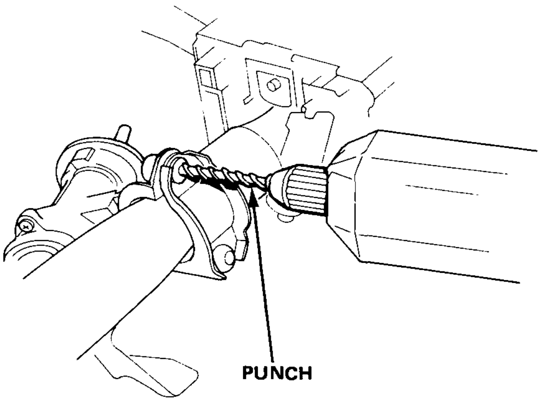
Air conditioner
Relay: 3 Diode: 1

① Power Relay
② Brake Warning Bulb Check Relay
③ Wiper Control Unit
④ Running Light Relay
⑤ Light on Warning Unit

Ignition Switch

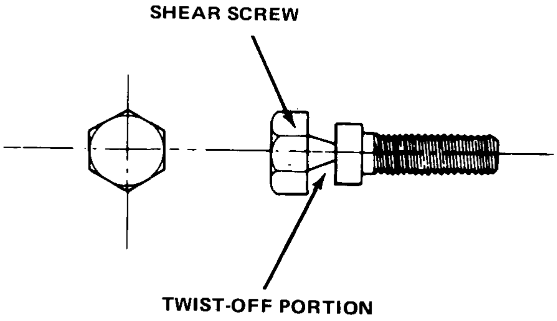
Replacement

1. Remove the steering column covers.
2. Disconnect the ignition switch connector.
3. Center punch each of the 2 shear screws and drill their heads off with a 3/8 in. drill bit.



4. Install the new ignition switch without the key inserted.
5. Hand tighten the new shear screws.

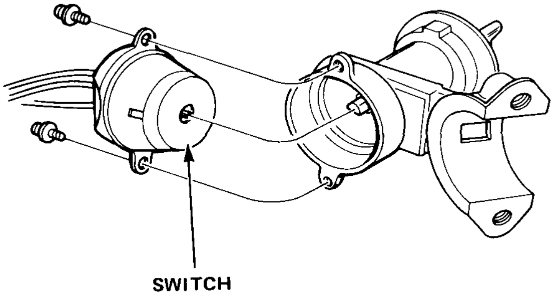
   NOTE: Make sure the projection of the ignition switch is aligned with the hole of the steering column.
6. Insert the ignition key and check for proper operation of the steering wheel lock.
7. Tighten the shear screws until the hex heads twist off.



Overhaul (Electrical Switch Replacement)

NOTE: The mechanical part of the switch should be removed to replace the electrical part.

1. Remove the steering column lower cover.
2. Disconnect the ignition switch connector.
3. Insert the key and turn it to 0.
4. Remove two screws and replace the base of the switch.

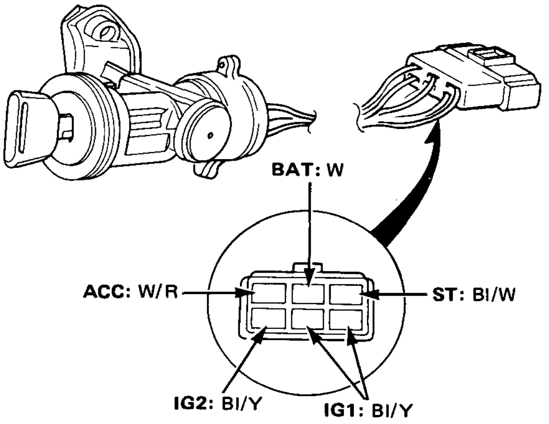


NOTE: Make sure the recess of the switch is aligned with the projection of the lock when installing.

Testing

Check for continuity according to the table.

TERMINAL / POSITION	ACC	BAT	IG1	IG2	ST
0					
I	○	○			
II	○	○	○	○	
III		○	○	—	○
WIRE COLOR	W/R	W	Bl/Y	Bl/Y	Bl/W

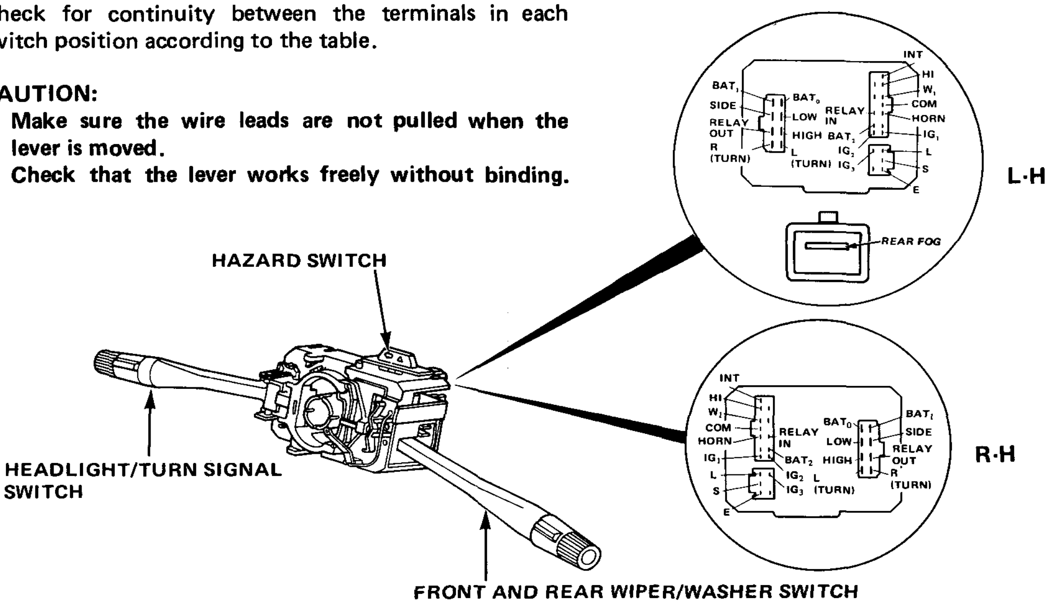


Combination Switch

Testing

Check for continuity between the terminals in each switch position according to the table.

CAUTION:
- **Make sure the wire leads are not pulled when the lever is moved.**
- **Check that the lever works freely without binding.**


HAZARD SWITCH
HEADLIGHT/TURN SIGNAL SWITCH
FRONT AND REAR WIPER/WASHER SWITCH
L·H
BAT1
SIDE
RELAY OUT
R (TURN)
BAT0
LOW
HIGH
L (TURN)
RELAY IN
BAT2
IG2
IG3
INT
HI
W1
COM
HORN
IG1
L
S
E
REAR FOG
R·H
INT
HI
W1
COM
HORN
IG1
L
S
E
RELAY IN
BAT2
IG2
IG3
L (TURN)
BAT0
LOW
HIGH
BAT1
SIDE
RELAY OUT
R (TURN)

Hazard/Turn Signal Switch

Hazard	BAT_2	IG_2	RELAY IN	RELAY OUT	R	L	HZ-PL	TURN SIGNAL
OFF		○	○	○	○			R
		○	○					NEUTRAL
		○	○	○	—	○		L
ON	○	—	○	○	○	○	○	R
	○	—	○	○	○	○	○	NEUTRAL
	○	—	○	○	○	○	○	L

Headlight Switch

Terminal Position	BAT_1	SIDE	BAT_0	(HEAD)	RRFOG
OFF					
·	○	○			
●	○	○	○	○	○

Dimmer Switch

Terminal Position	(HEAD)	HIGH	LOW
HIGH	○	○	
↑ ↓	○	○	○
LOW	○	—	○

Front Wiper Switch

Terminal Position	HI	L_0	E	COM	IG_1	INT	MIST
OFF		○	—	○			OFF
	○	—	○				ON
INT		○	—	○	○	○	OFF
	○	—	○		○	○	ON
L_0		○	○				OFF
	○	—	○				ON
H_1	○	—	○				OFF
	○	—	○				ON

Terminal Position	W_1	IG_1
OFF		
ON	○	○

Terminal Position	BAT_0	HIGH
OFF		
ON	○	○

Rear Washer Switch

Terminal Position	IG_3	W
OFF		
ON	○	○

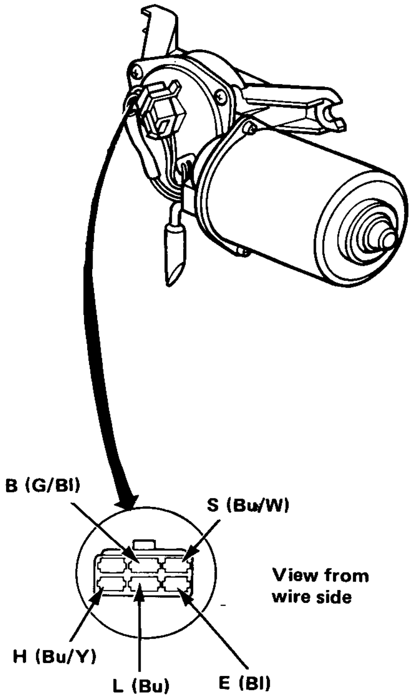
Rear Wiper Switch

	L	S	E
OFF	○	○	
ON	○	—	○

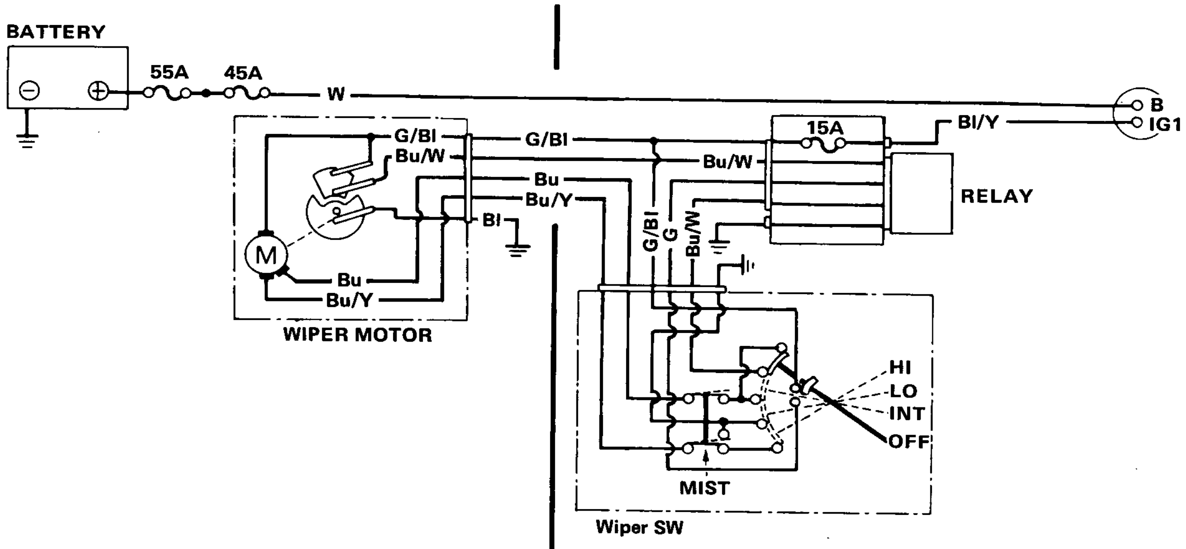
Front Wiper Moter

Testing

1. Check for continuity with the motor automatically stopped position.
   There should be continuity between the S(Bu/W) and B(G/Bl), and no continuity between S(Bu/W) and E (Bl) leads.
2. Test motor low speed by applying battery voltage: Positive to the B(G/Bl) lead and negative to the L(Bu) lead.
3. Test motor high speed by applying battery voltage: Positive to the B(G/Bl) lead and negative to the H(Bu/Y) lead.
4. If motor fails to run smoothly, replace the motor assembly.


B (G/Bl)
S (Bu/W)
View from wire side
H (Bu/Y)
L (Bu)
E (Bl)

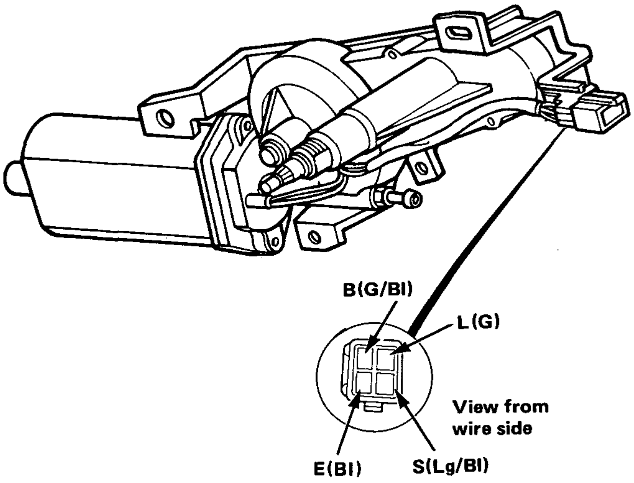
Wiring Diagram


BATTERY
55A
45A
W
B
IG1
Bl/Y
15A
RELAY
G/Bl
Bu/W
G/Bl
Bu/W
Bu
Bu/Y
Bl
M
Bu
Bu/Y
WIPER MOTOR
G/Bl
G
Bu/W
HI
LO
INT
OFF
MIST
Wiper SW

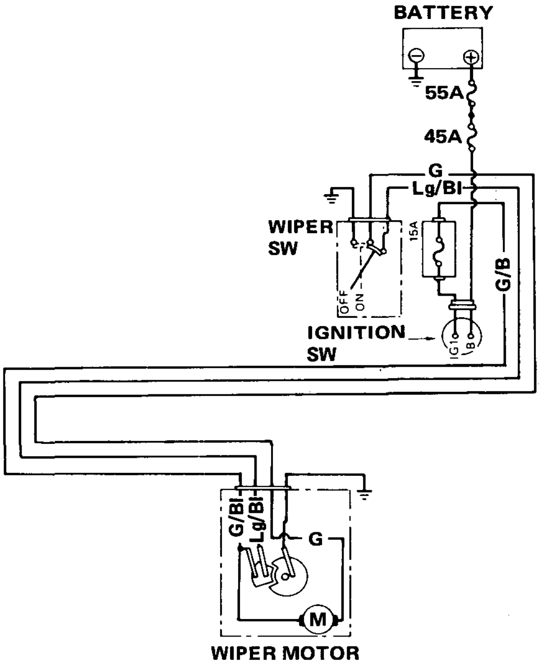
Rear Wiper Moter

Rear Wiper Motor Testing

1. Test the wiper motor by applying battery voltage to the G/Bl lead (positive) and G (negative) lead.
2. If the motor fails to turn smoothly, replace it.


B(G/Bl)
L(G)
View from wire side
E(Bl)
S(Lg/Bl)

Wiring Diagram

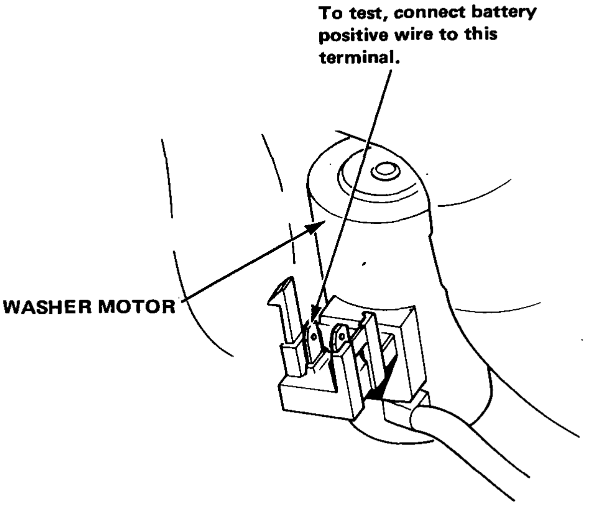

BATTERY
55A
45A
G
Lg/Bl
WIPER SW
15A
OFF
ON
G/B
IGNITION SW
IG1
B
G/Bl
Lg/Bl
G
M
WIPER MOTOR

Washer Motor
Horn Switch

Washer Motor Testing

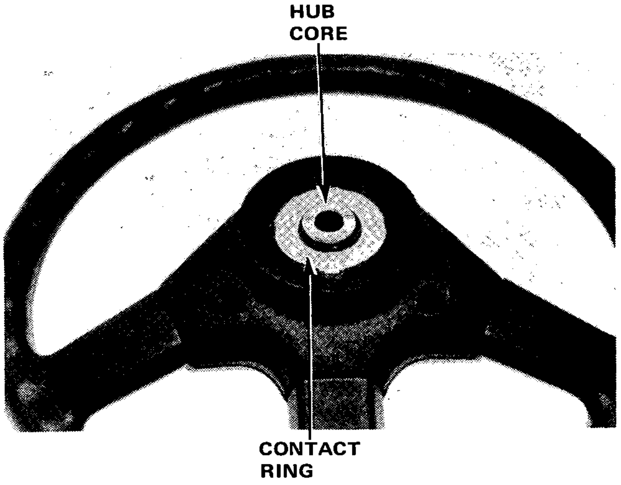
Test motor speed by applying the battery voltage to its terminals.

NOTE: Connect the battery positive cable to the lock side terminal of the motor.


To test, connect battery positive wire to this terminal.
WASHER MOTOR

Horn Switch Testing

Use an ohmmeter.
There should be continuity between the contact ring and hub core when the horn switch is depressed, and no continuity when released.

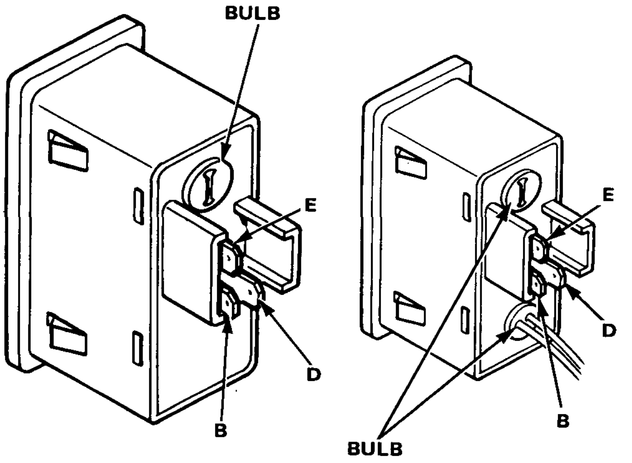

HUB CORE
CONTACT RING

Defroster

Switch Testing

Check for continuity

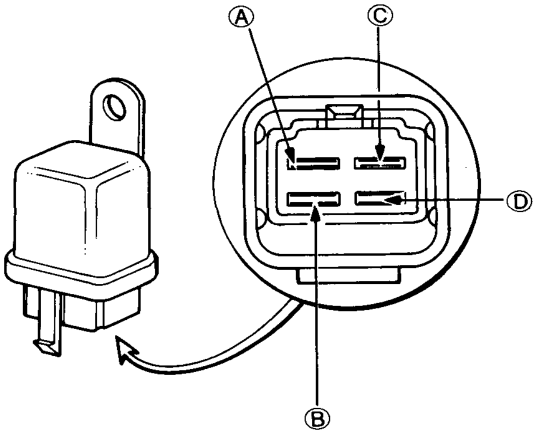
Terminal / Position	B	D		E
OFF		○—	—⊗—	—○
ON	○—	—○—	—⊗—	—○


BULB
E
D
B
BULB
E
D
B

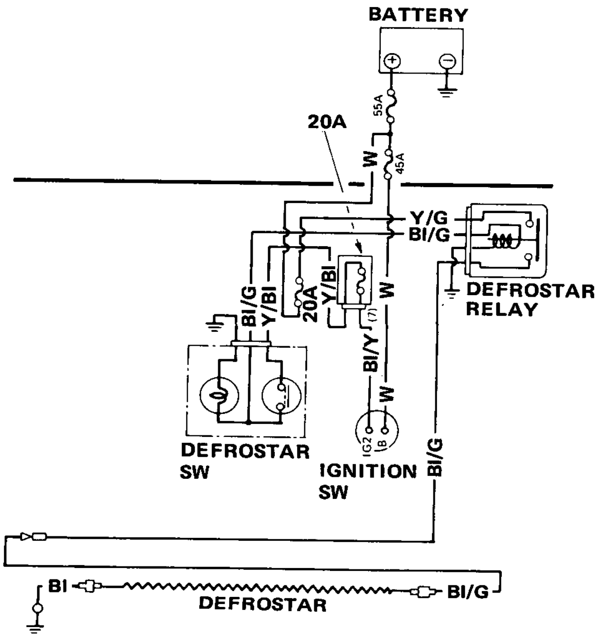
Defroster Interior Light Switch

Defroster Relay Testing

There should be continuity between A and B terminals, when applying battery voltage to C (positive) and D (negative) terminals. There should be no continuity when the battery is disconnected.



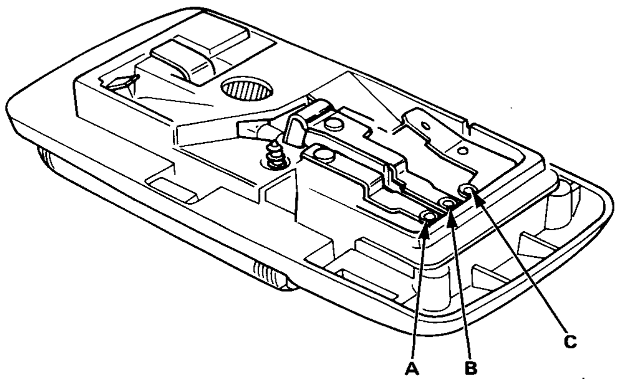
Wiring Diagram


BATTERY
55A
20A
W
45A
Y/G
Bl/G
Bl/G
Y/Bl
20A
Y/Bl
(7)
W
Bl/Y
W
DEFROSTAR RELAY
DEFROSTAR SW
IG2
B
IGNITION SW
Bl/G
Bl
DEFROSTAR
Bl/G

Interior Light Switch Testing

Check for continuity according to the table.

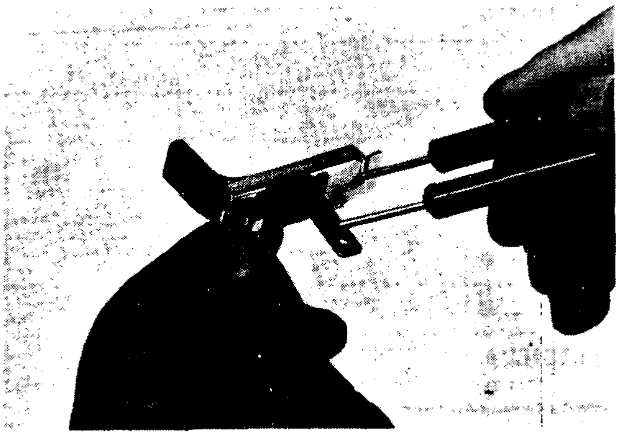
TERMINAL / POSITION	A	B	C	
OFF				
MID.		○—	—○	
ON	○—	—○		



Door Switch
Trunk Light Switch

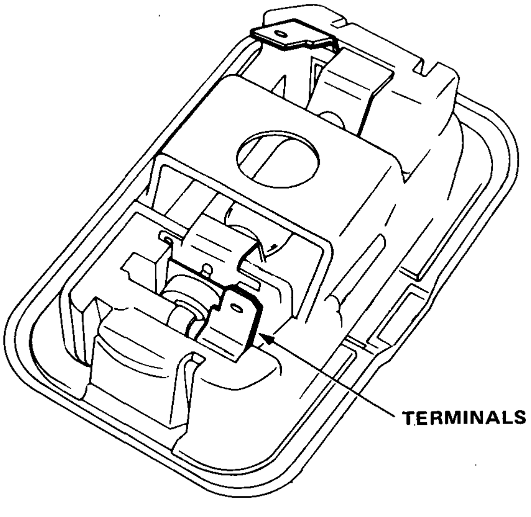
Door Switch Testing

There should be no continuity when the switch is pulled (door is closed), and continuity when the switch is released (door is open).



Trunk Light Switch Testing

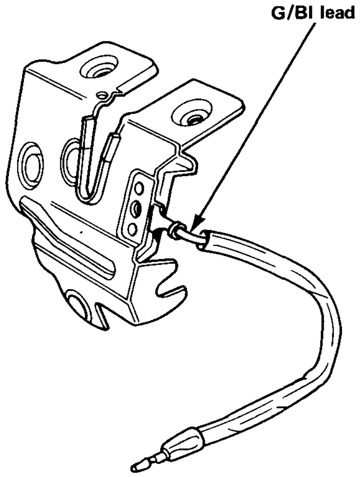
Make sure that the bulb is in good condition.
Set the trunk light switch in the ON position and check for continuity between terminals.



Luggage Light Switch

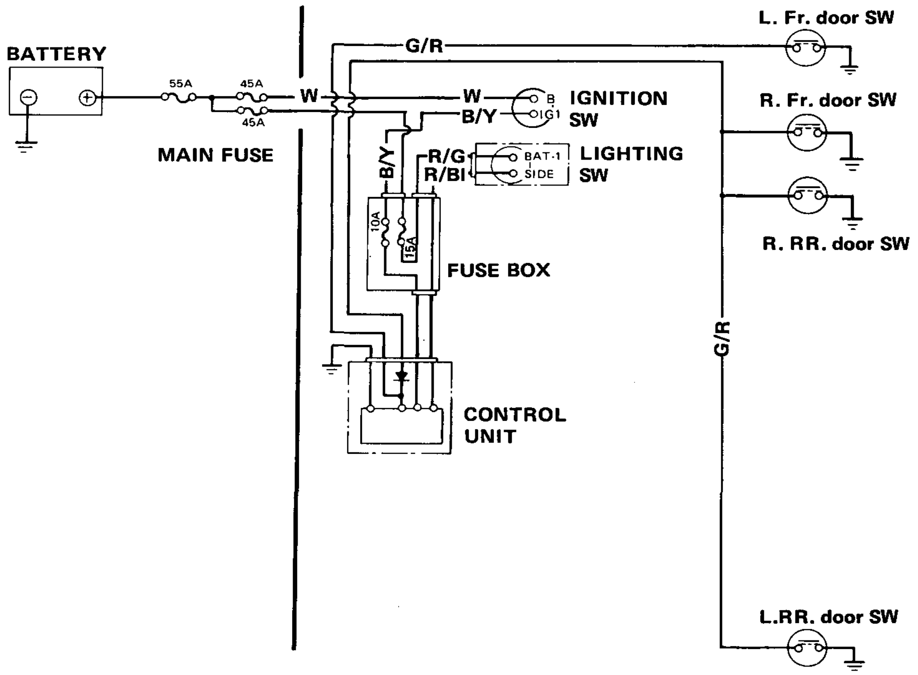
Testing

There should be continuity between G/Bl lead and ground when the trunk lid is open, and no continuity when the trunk lid is closed.



Light-on Warning System

Wiring Diagram



BATTERY
55A
45A
45A
MAIN FUSE
W
G/R
W
B/Y
B
IG1
IGNITION SW
B/Y
R/G
R/BI
BAT-1
SIDE
LIGHTING SW
10A
15A
FUSE BOX
CONTROL UNIT
L. Fr. door SW
R. Fr. door SW
R. RR. door SW
G/R
L.RR. door SW

Troubleshooting

1. Buzzer does not sound.

Open driver's door.

Check room lamp.

OK?

NO — Check for continuity between driver's door switch harness wire and body ground.

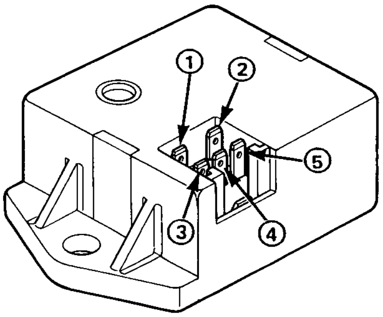
Is there continuity? NO — Faulty door switch.

YES — Check for continuity between ③ terminal and driver's door switch harness wire.

See page 25-14

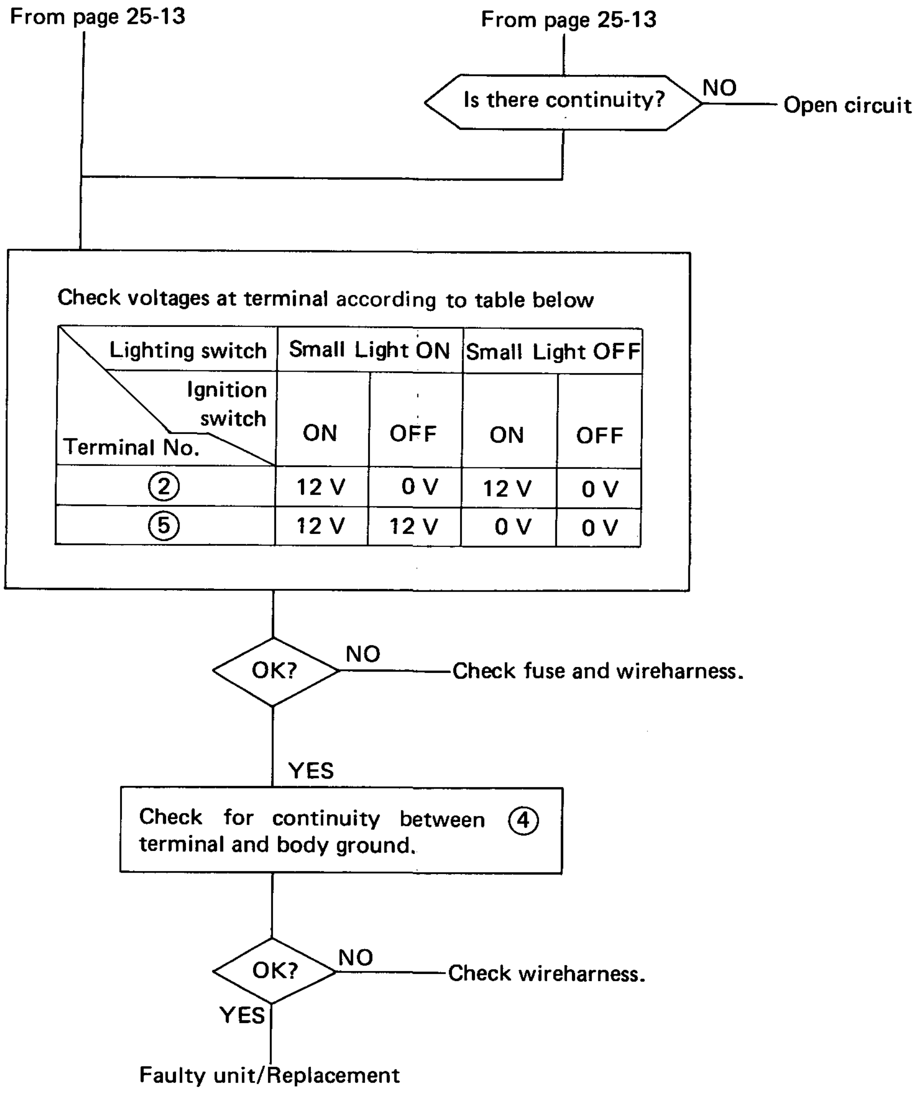
YES — See page 25-14

① **R. door SW**
② **Ignition SW**
③ **Driver's door SW**
④ **GND**
⑤ **Light**



Light-on Warning System

Troubleshooting (cont'd)

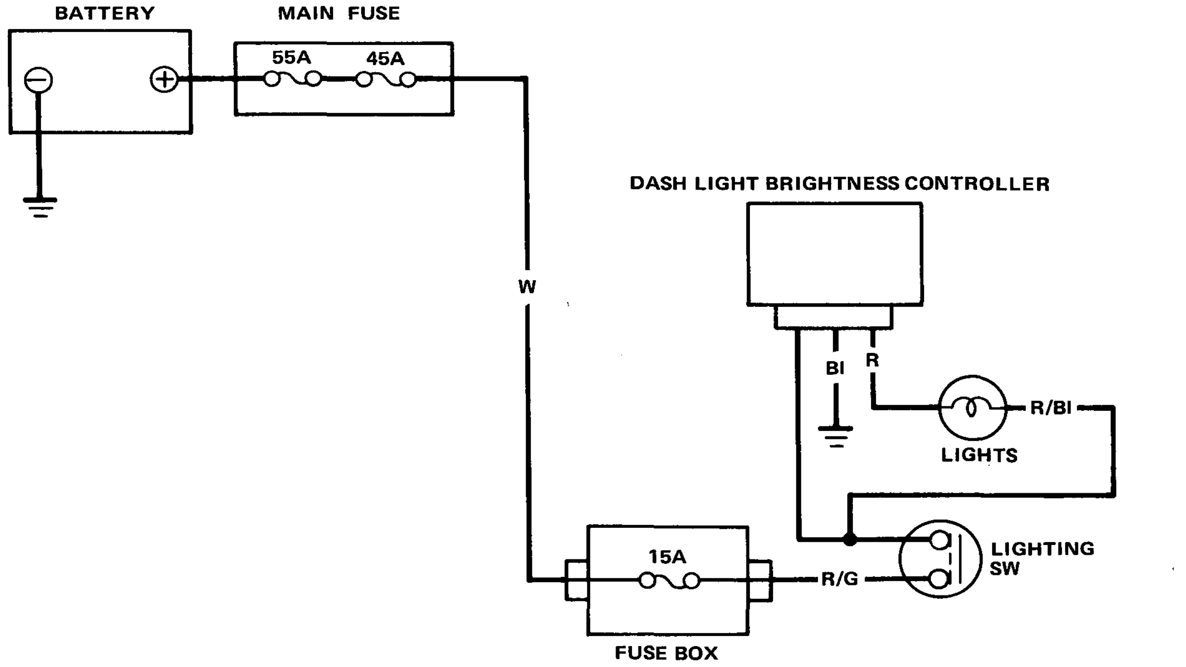

From page 25-13
From page 25-13
Is there continuity?
NO
Open circuit
Check voltages at terminal according to table below
OK?
NO
Check fuse and wireharness.
YES
Check for continuity between ④ terminal and body ground.
OK?
NO
Check wireharness.
YES
Faulty unit/Replacement

Lighting switch / Ignition switch / Terminal No.	Small Light ON		Small Light OFF	
	ON	OFF	ON	OFF
②	12 V	0 V	12 V	0 V
⑤	12 V	12 V	0 V	0 V

2. The room lamp won't light even when the driver's door is opened (the buzzer sounds): Replace the unit.
3. The buzzer sounds when the assistants door is opened: Replace the unit.

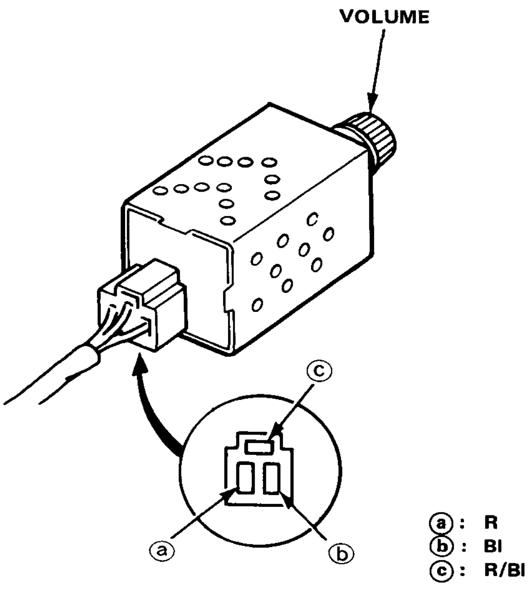
Dash Light Brightness Control

Wiring Diagram


BATTERY
MAIN FUSE
55A
45A
W
DASH LIGHT BRIGHTNESS CONTROLLER
Bl
R
R/Bl
LIGHTS
LIGHTING SW
15A
R/G
FUSE BOX

Controller Testing

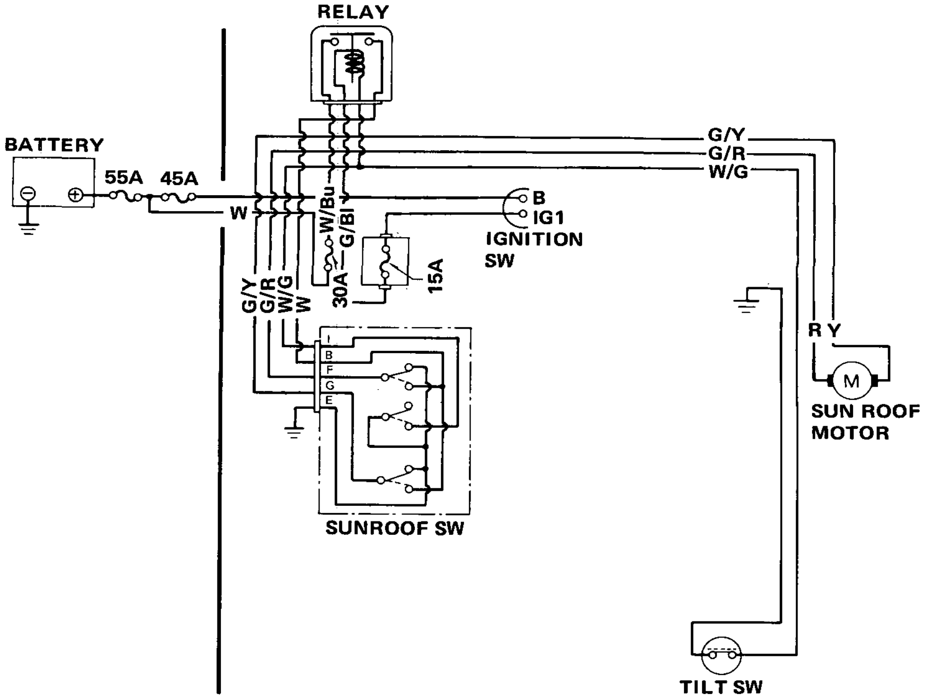
1. Turn the lighting switch on.
2. Connect the volt meter positive prove to ⓐ terminal and negative probe to ⓑ terminal.
3. Turn the controller volume.
4. The controller is normal if the voltage varies.


VOLUME
ⓐ
ⓑ
ⓒ
ⓐ: R
ⓑ: Bl
ⓒ: R/Bl

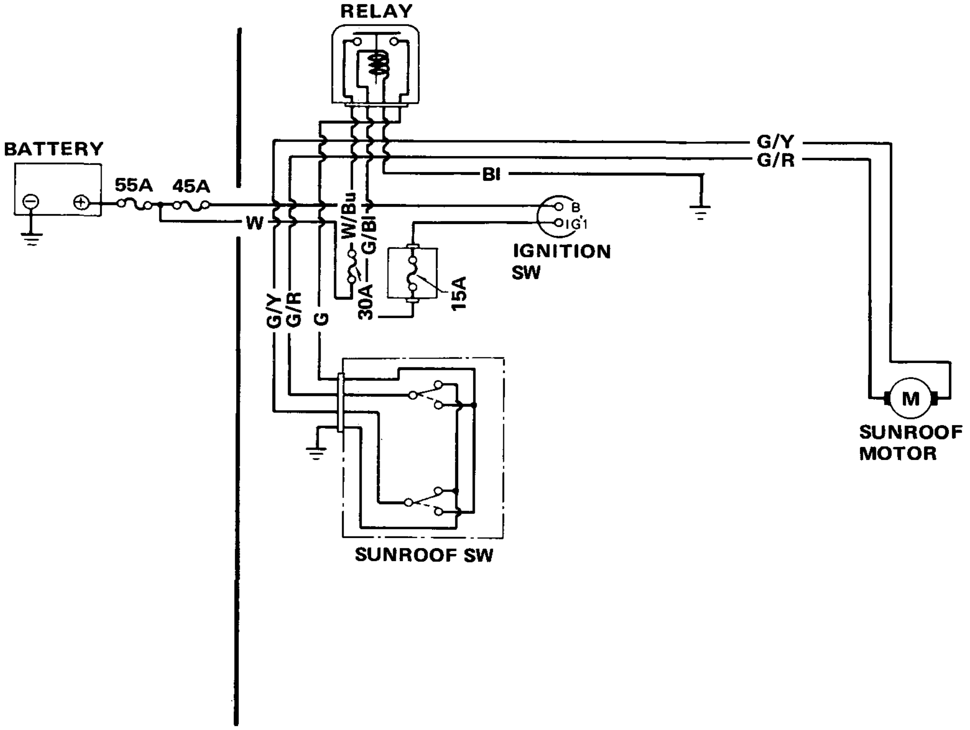
Sunroof

Wiring Diagram

Coupe:


RELAY
BATTERY
55A
45A
W
G/Y
G/R
W/G
W/Bu
G/Bl
B
IG1
IGNITION SW
30A
15A
G/Y
G/R
W/G
W
I
B
F
G
E
SUNROOF SW
R Y
M
SUN ROOF MOTOR
TILT SW

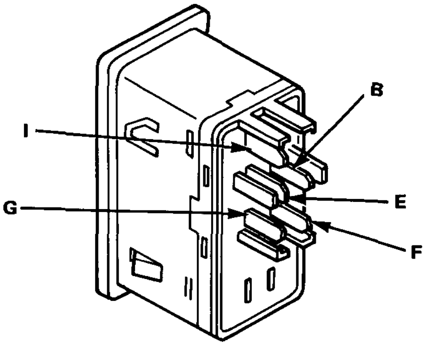
4D H/B:


RELAY
BATTERY
55A
45A
W
G/Y
G/R
Bl
W/Bu
G/Bl
B
IG1
IGNITION SW
30A
15A
G/Y
G/R
G
SUNROOF SW
M
SUNROOF MOTOR

Switch Testing (Coupe)

Check for continuity according to the table.

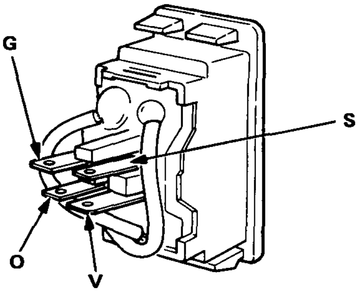
POSITION \ TERMINAL	B	F	G	I	E
CLOSE	○	—	○		
		○	—	○	○
OFF		○	○	—	○
TILT	○	○			
			○	—	○
OPEN	○	○			
			○	○	○



Switch Testing (4D H/B)

Check for continuity according to table.

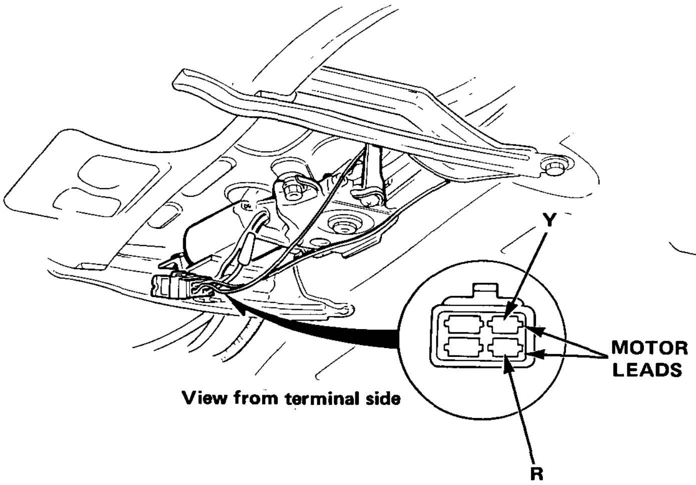
POSITION \ TERMINAL	V	O	S	G
OPEN	○	○		
			○	○
OFF		○	○	○
CLOSE	○	—	○	
		○	—	○



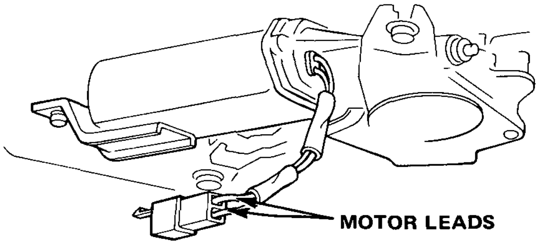
Motor Testing

Check motor operation by connecting a wire from the battery positive terminal to one of the motor leads, and a battery ground to the other. Reverse the wires to be sure the motor will run in both directions.

(Coupe)


Y
MOTOR LEADS
View from terminal side
R

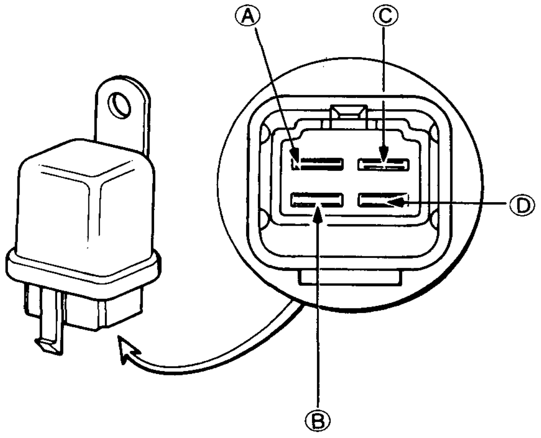
(4D H/B)


MOTOR LEADS

Sunroof
Rear Fog Light

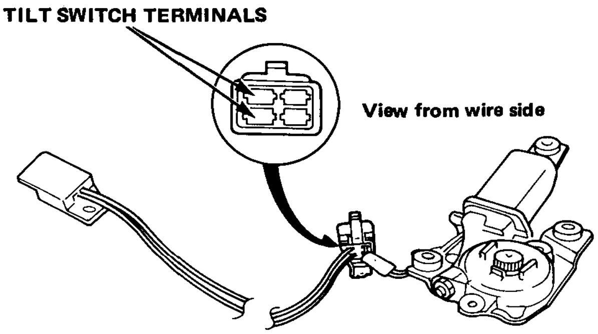
Sunroof Relay Testing

There should be continuity between A and B terminals, when applying battery voltage to C (positive) and D (negative) terminals. There should be no continuity when the battery is disconnected.



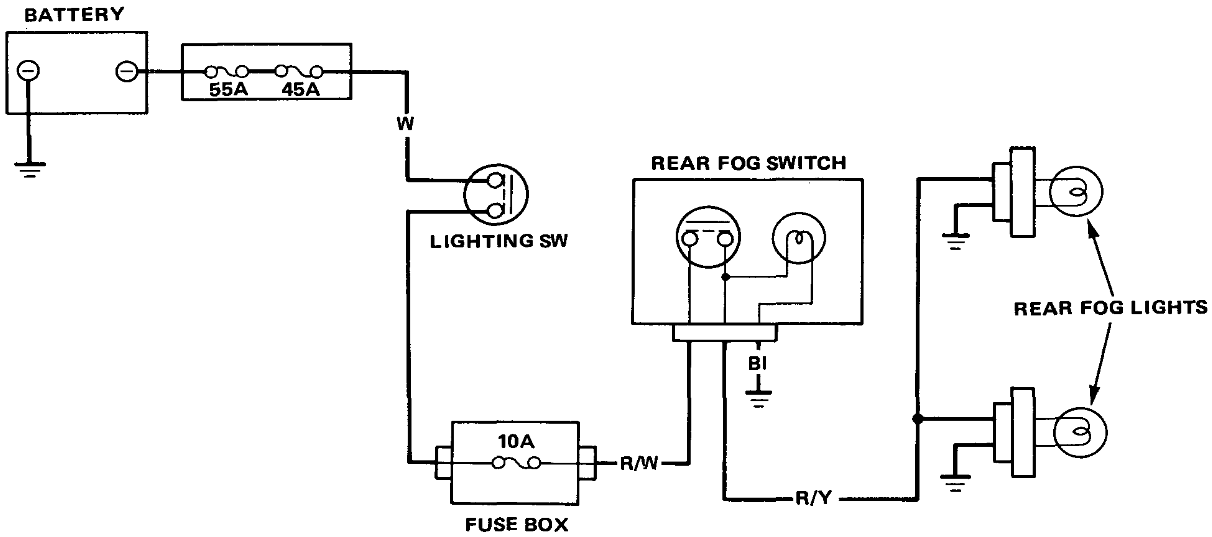
Tilt Switch Testing (Coupe)

Check for continuity between the terminals. There should be continuity when the sunroof is not tilted. There should be no continuity when the sunroof is tilted.



TILT SWITCH TERMINALS
View from wire side

Rear Fog Light Wiring Diagram

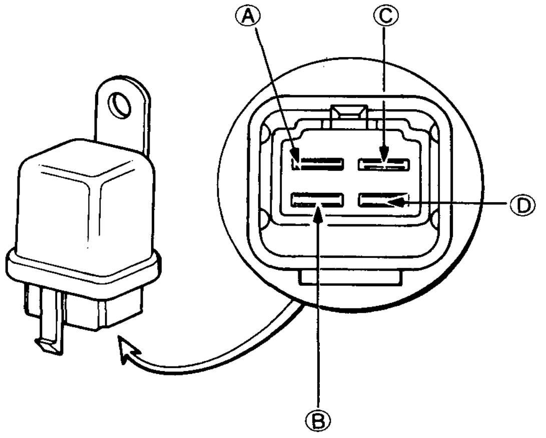


BATTERY
55A
45A
W
LIGHTING SW
REAR FOG SWITCH
BI
10A
R/W
FUSE BOX
R/Y
REAR FOG LIGHTS

Sunroof
Rear Fog Light

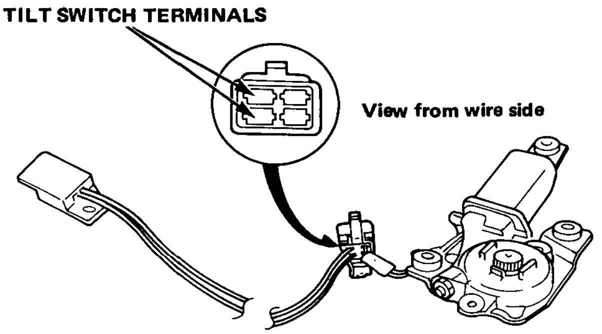
Sunroof Relay Testing

There should be continuity between A and B terminals, when applying battery voltage to C (positive) and D (negative) terminals. There should be no continuity when the battery is disconnected.

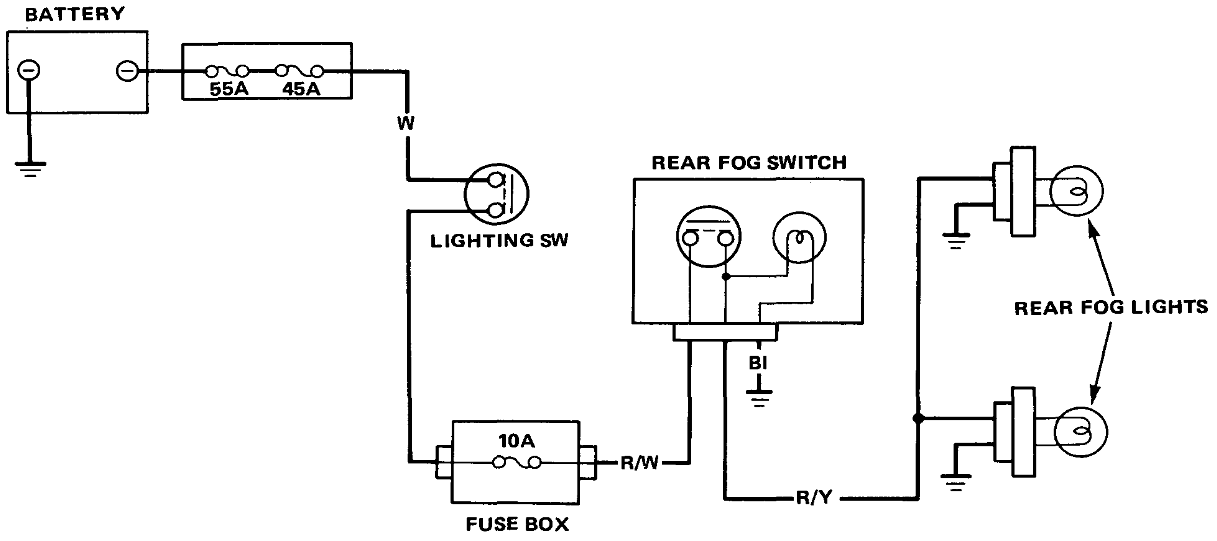


Tilt Switch Testing (Coupe)

Check for continuity between the terminals. There should be continuity when the sunroof is not tilted. There should be no continuity when the sunroof is tilted.


TILT SWITCH TERMINALS
View from wire side

Rear Fog Light Wiring Diagram

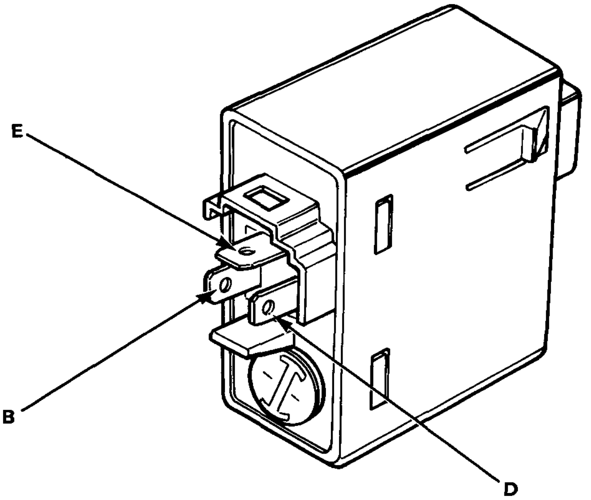

BATTERY
55A
45A
W
LIGHTING SW
REAR FOG SWITCH
BI
10A
FUSE BOX
R/W
R/Y
REAR FOG LIGHTS

Rear Fog Light, Day Time Running Light

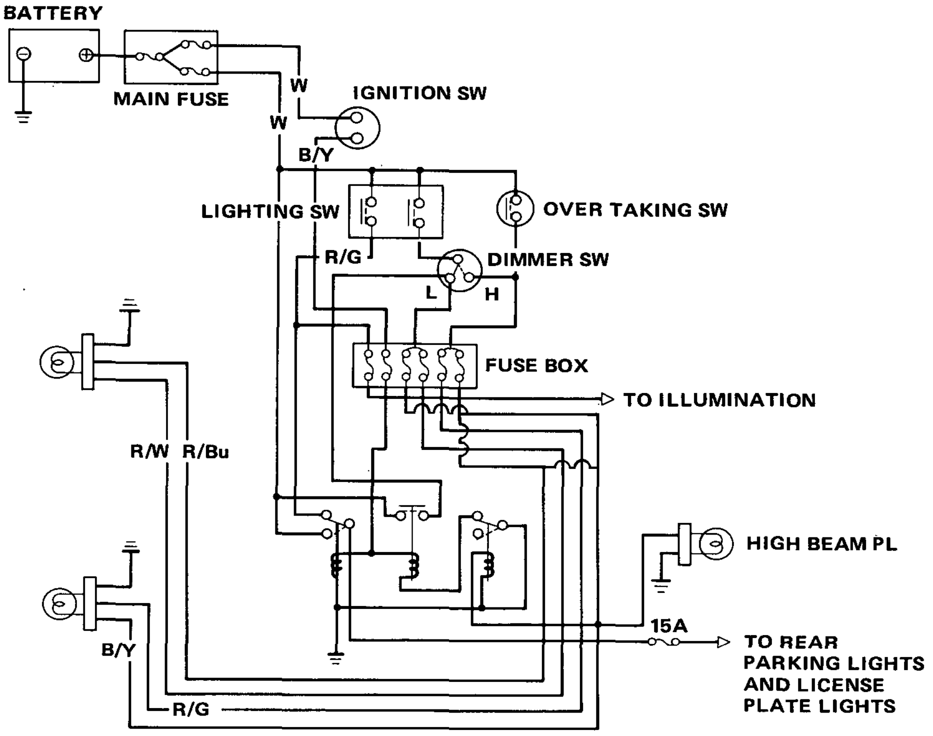
Rear Fog Light Switch Testing

Check for continuity according to the table below.

	B	D		E
OFF		○—	—⊗—	—○
ON	○—	—○—	—⊗—	—○



Day Time Running Light Wiring Diagram



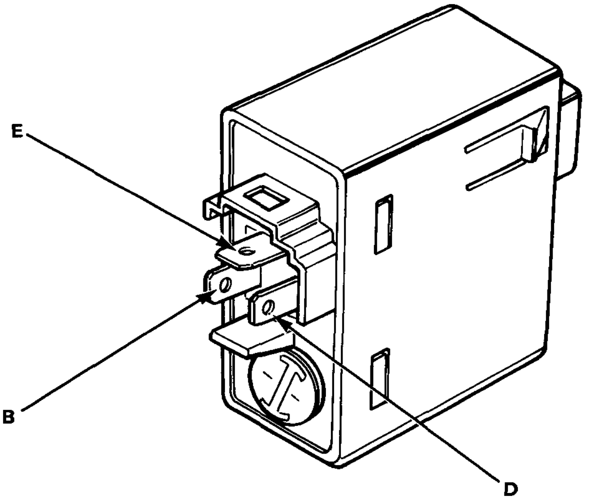
BATTERY
MAIN FUSE
W
W
IGNITION SW
B/Y
LIGHTING SW
OVER TAKING SW
R/G
DIMMER SW
L
H
FUSE BOX
TO ILLUMINATION
R/W
R/Bu
HIGH BEAM PL
B/Y
15A
TO REAR PARKING LIGHTS AND LICENSE PLATE LIGHTS
R/G

Rear Fog Light, Day Time Running Light

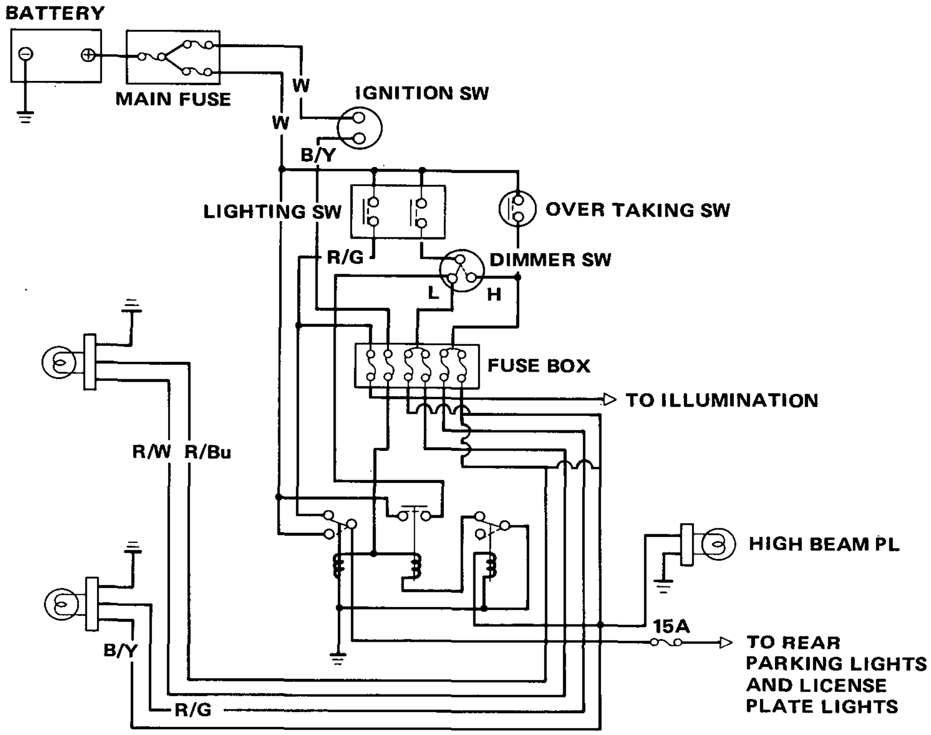
Rear Fog Light Switch Testing

Check for continuity according to the table below.

	B	D		E
OFF		○—	—⊘—	—○
ON	○—	—○—	—⊘—	—○



Day Time Running Light Wiring Diagram


BATTERY
MAIN FUSE
W
W
IGNITION SW
B/Y
LIGHTING SW
OVER TAKING SW
R/G
DIMMER SW
L
H
FUSE BOX
TO ILLUMINATION
R/W
R/Bu
HIGH BEAM PL
15A
B/Y
TO REAR PARKING LIGHTS AND LICENSE PLATE LIGHTS
R/G

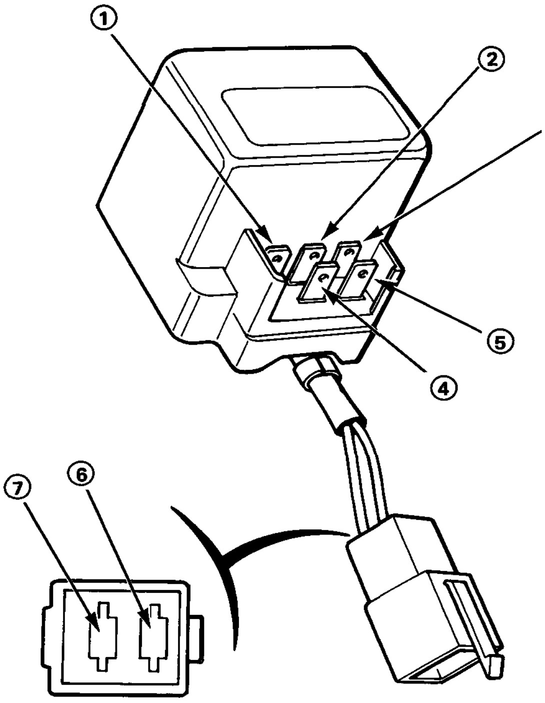
Day Time Running Light Headlight Washer & Wiper

Day Time Running Relay Testing

(1) Check for continuity between the (2) and (7) terminals when the battery positive terminal is connected to the (4) terminal and the negative to the (5) terminal.

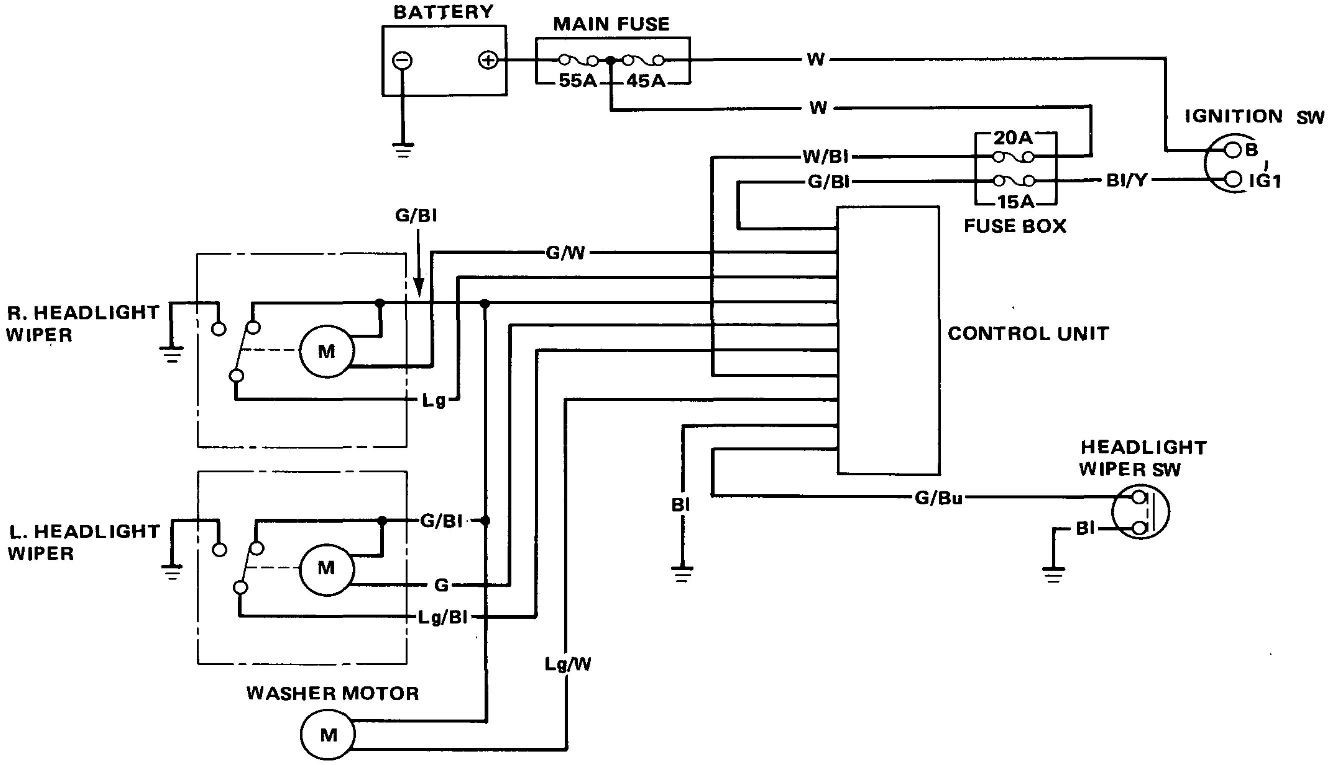
(2) Check for continuity between the (2) and (1) terminals when the battery positive terminal is connected to the (4) terminal and the negative to the (5) terminal.

(3) Check for no continuity between the terminals (2) and (1) when the battery positive terminal is connected to the (4) and (3) terminals and the negative to the (5) terminal.



View from wire side

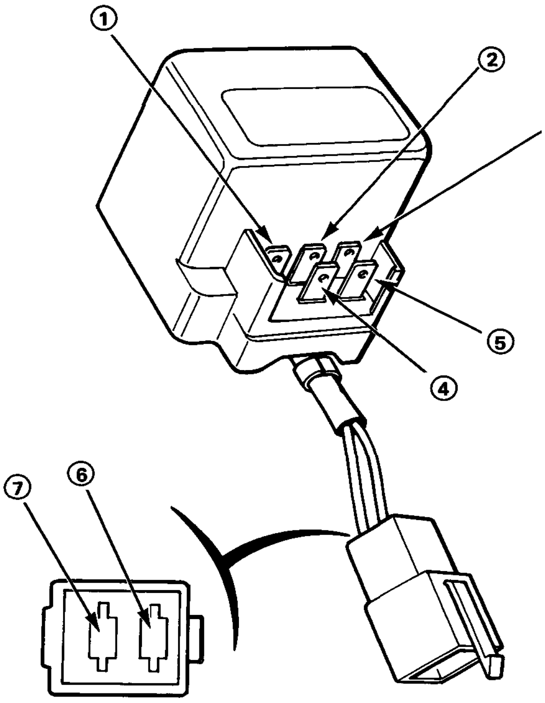
Headlight Washer & Wiper Wiring Diagram


BATTERY
MAIN FUSE
55A
45A
W
W
IGNITION SW
B
IG1
W/Bl
G/Bl
20A
15A
Bl/Y
FUSE BOX
G/Bl
G/W
R. HEADLIGHT WIPER
M
Lg
CONTROL UNIT
HEADLIGHT WIPER SW
Bl
G/Bu
Bl
L. HEADLIGHT WIPER
G/Bl
M
G
Lg/Bl
Lg/W
WASHER MOTOR
M

Day Time Running Light Headlight Washer & Wiper

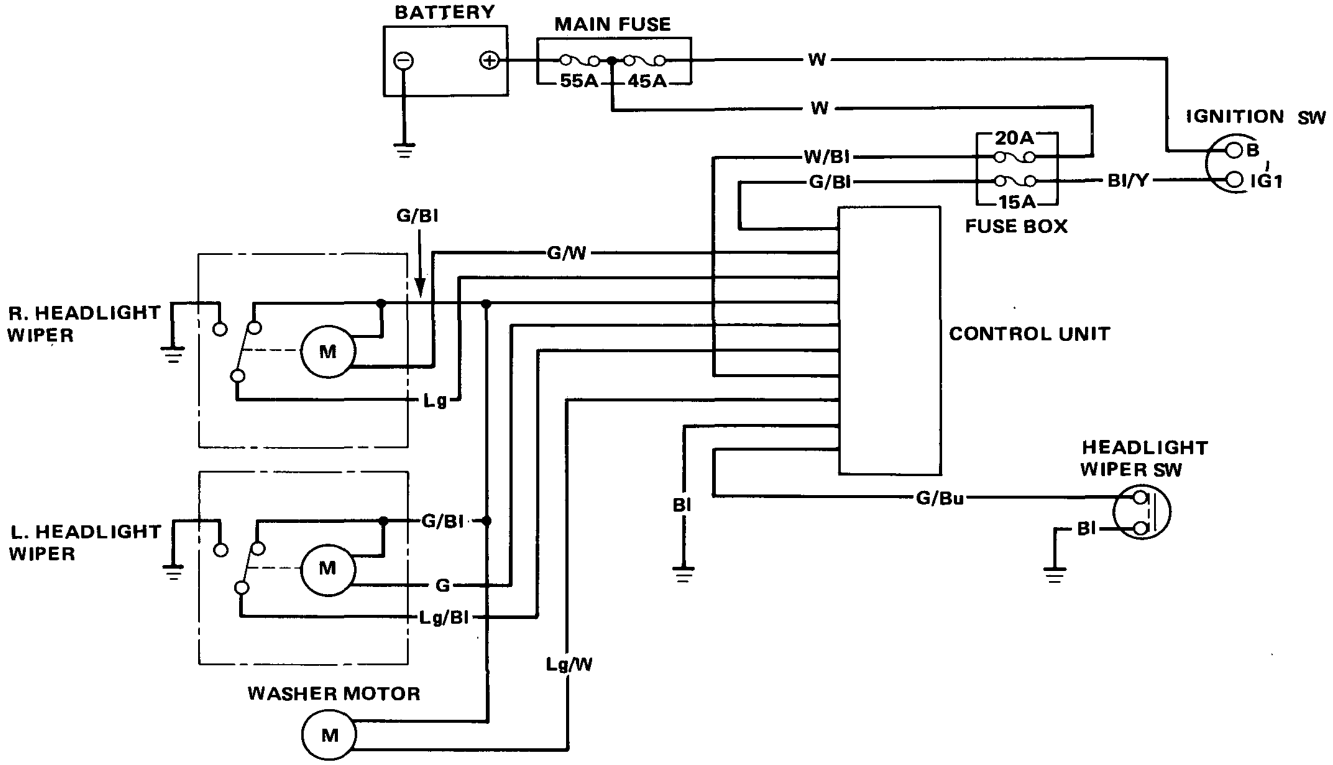
Day Time Running Relay Testing

(1) Check for continuity between the (2) and (7) terminals when the battery positive terminal is connected to the (4) terminal and the negative to the (5) terminal.
(2) Check for continuity between the (2) and (1) terminals when the battery positive terminal is connected to the (4) terminal and the negative to the (5) terminal.
(3) Check for no continuity between the terminals (2) and (1) when the battery positive terminal is connected to the (4) and (3) terminals and the negative to the (5) terminal.



View from wire side

Headlight Washer & Wiper Wiring Diagram



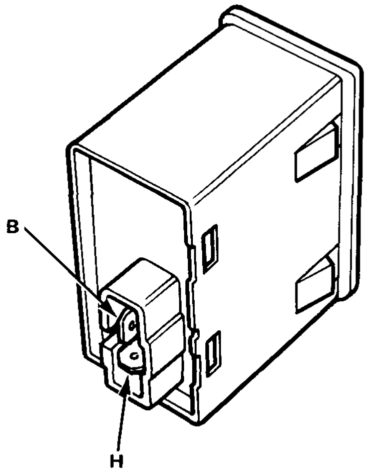
BATTERY
MAIN FUSE
55A
45A
W
W
IGNITION SW
B
IG1
W/Bl
G/Bl
20A
15A
Bl/Y
FUSE BOX
G/Bl
G/W
CONTROL UNIT
R. HEADLIGHT WIPER
M
Lg
L. HEADLIGHT WIPER
M
G/Bl
G
Lg/Bl
Bl
G/Bu
HEADLIGHT WIPER SW
Bl
Lg/W
WASHER MOTOR
M

Headlight Washer & Wiper

Switch Testing

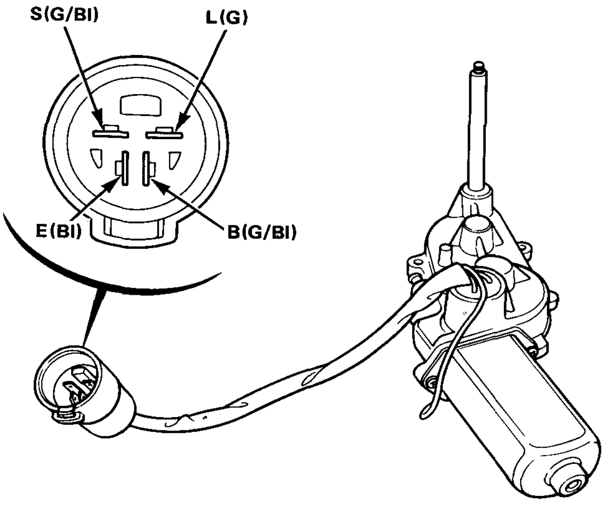
Test continuity according to the table.

	B	H
OFF		
ON	○	○



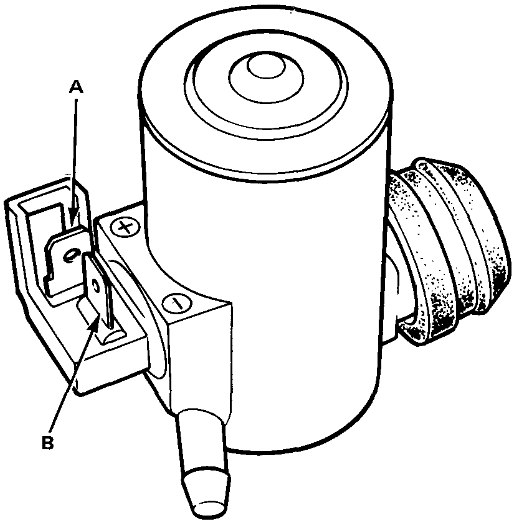
Wiper Motor Testing

1. Test the rear wiper motor by applying battery voltage to the G/Bl (B: positive) and G (negative) leads.
2. If the motor fails to turn smoothly, replace it.



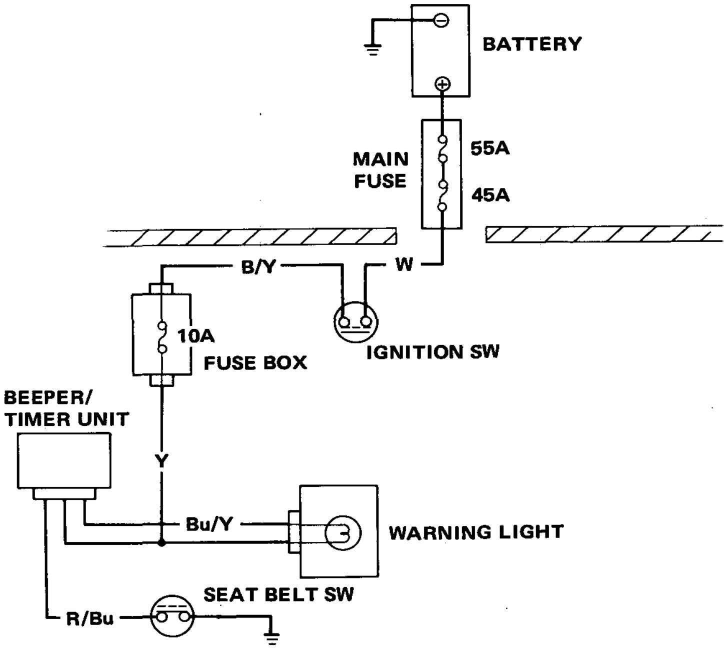
Washer Motor Testing

Test motor by applying battery voltage to A (positive) and B (negative) terminals.



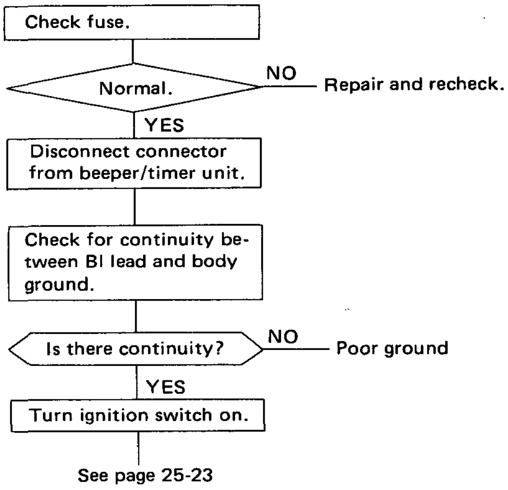
Seat Belt Warning System

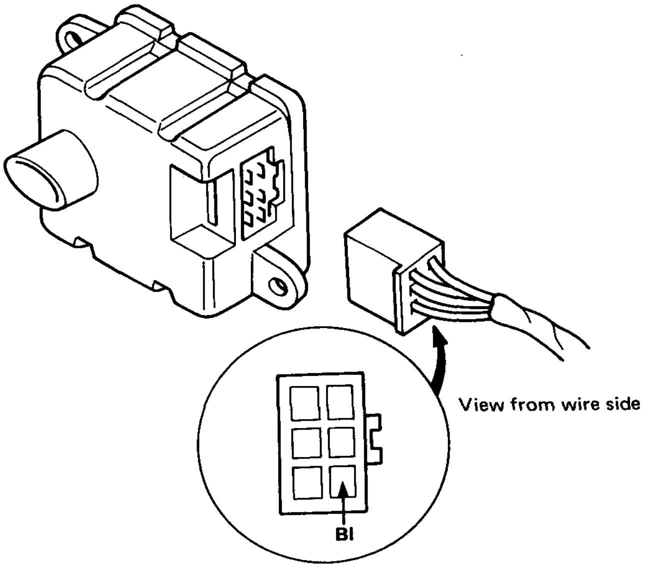
Wiring Diagram


BATTERY
MAIN FUSE
55A
45A
B/Y
W
10A
FUSE BOX
IGNITION SW
BEEPER/ TIMER UNIT
Y
Bu/Y
WARNING LIGHT
SEAT BELT SW
R/Bu

Troubleshooting

1. Light and beeper don't work.


Check fuse.
Normal.
NO
Repair and recheck.
YES
Disconnect connector from beeper/timer unit.
Check for continuity between Bl lead and body ground.
Is there continuity?
NO
Poor ground
YES
Turn ignition switch on.
See page 25-23


View from wire side
Bl

Seat Belt Warning System

Troubleshooting (cont'd)

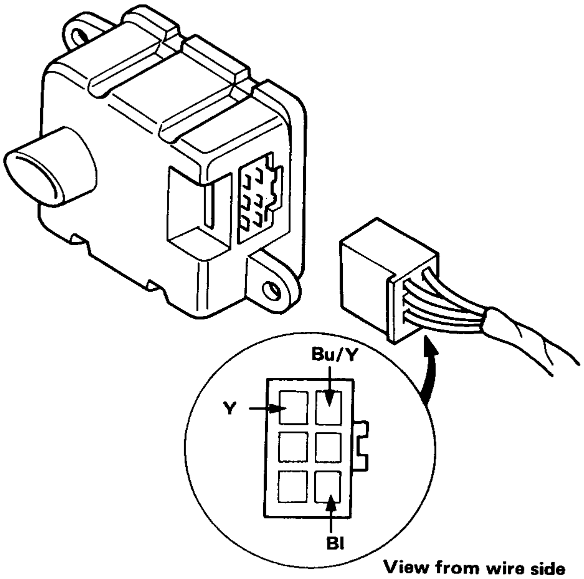
From page 25-22

Measure voltage between Y lead (positive) and Bl lead (negative)

Is 12 volts available?

NO — Open circuit between fuse and beeper/timer unit

YES — Faulty beeper/timer unit



View from wire side

2. Light doesn't flash

Check beeper operation.

Does beeper work properly?

NO — See No. 1 troubleshooting.

YES

Turn ignition switch off.

Disconnect connector from beeper/timer unit.

Connect Bu/Y lead to Bl lead by using jumper wire.

Turn ignition switch on.

Light ON?

NO — Bulb burned out or Open circuit in Bu/Y lead

YES — Faulty beeper/timer unit

3. Beeper doesn't work.

Check warning light operation.

Does light flash properly?

NO — See No. 1 Troubleshooting.

YES

Turn ignition switch off.

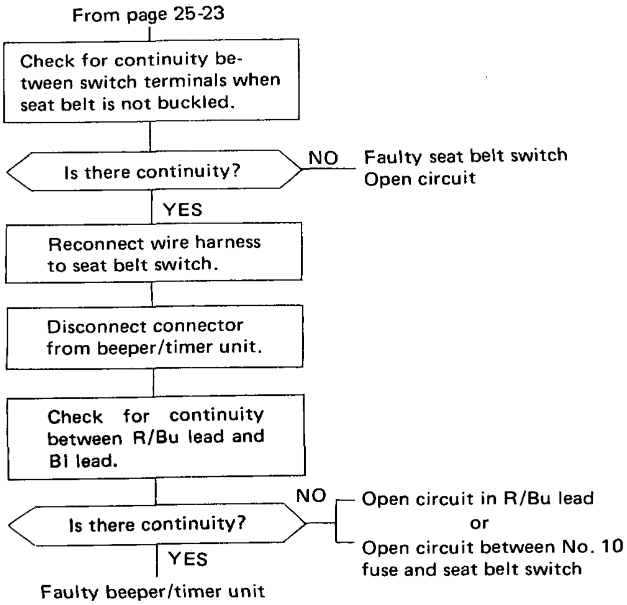
Disconnect wire harness from seat belt switch.

See page 25-24

(cont'd)

Seat Belt Warning System

Troubleshooting (cont'd)


From page 25-23

Check for continuity between switch terminals when seat belt is not buckled.

Is there continuity?

NO — Faulty seat belt switch
Open circuit

YES

Reconnect wire harness to seat belt switch.

Disconnect connector from beeper/timer unit.

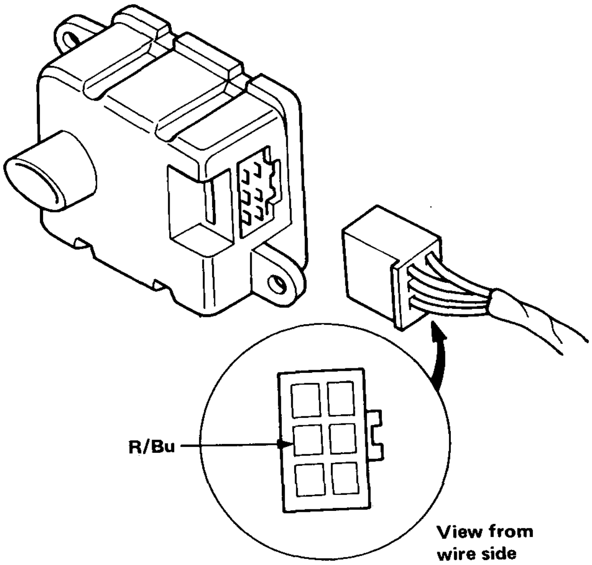
Check for continuity between R/Bu lead and Bl lead.

Is there continuity?

NO — Open circuit in R/Bu lead
or
Open circuit between No. 10 fuse and seat belt switch

YES

Faulty beeper/timer unit

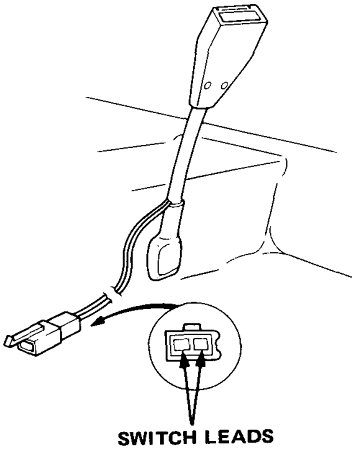


4. **Light stays on constantly.**
   - Short circuit in Bu/Y lead
5. **Light continues to flash and beeper won't shut off after 6 seconds.**
   - Faulty beeper/timer unit

Seat Belt Switch Testing

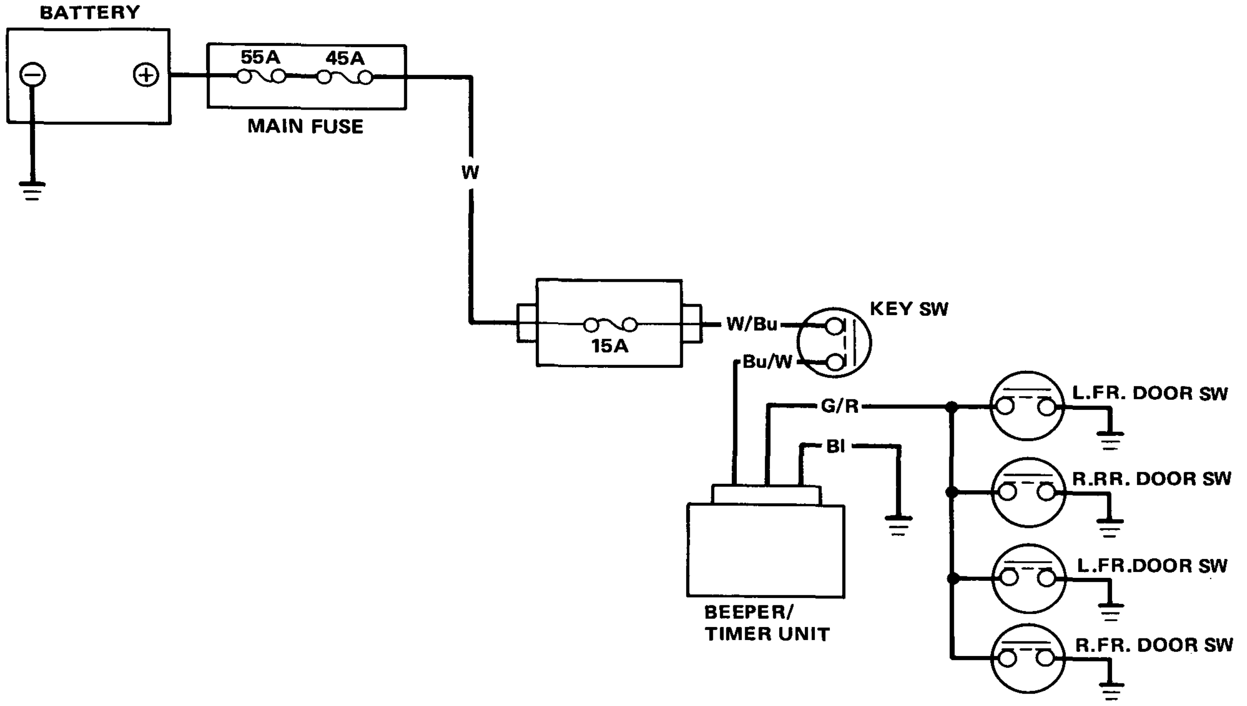
Check for continuity.

- There should be continuity when the seat belt is not buckled.
- There should be no continuity when the seat belt is buckled.



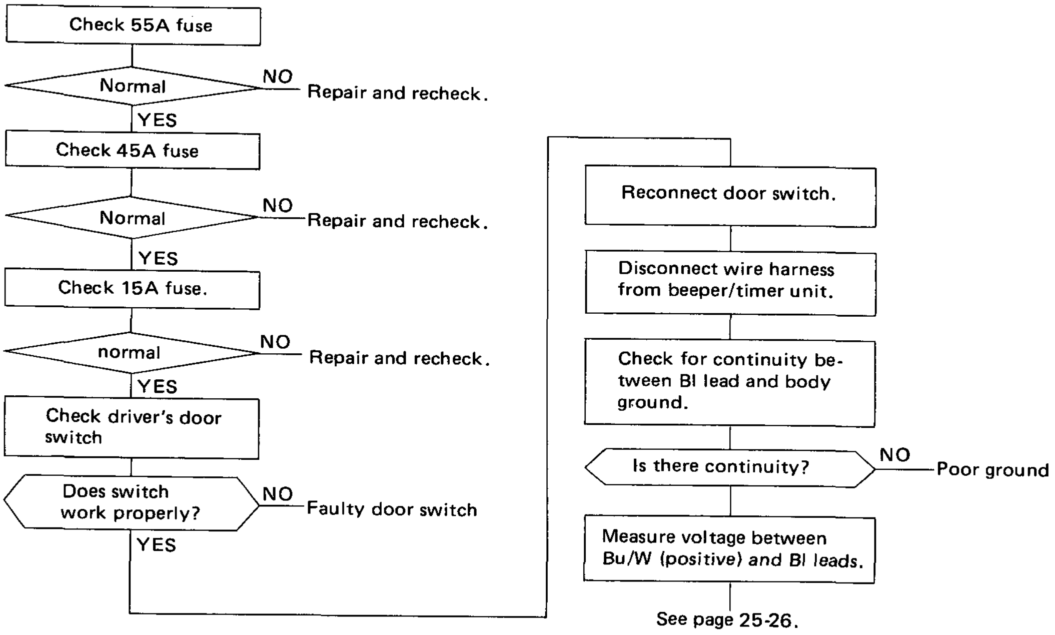
Key-On Warning System

Wiring Diagram


BATTERY
55A
45A
MAIN FUSE
W
15A
W/Bu
Bu/W
KEY SW
G/R
Bl
BEEPER/
TIMER UNIT
L.FR. DOOR SW
R.RR. DOOR SW
L.FR.DOOR SW
R.FR. DOOR SW

Troubleshooting

1. Beeper doesn't work.

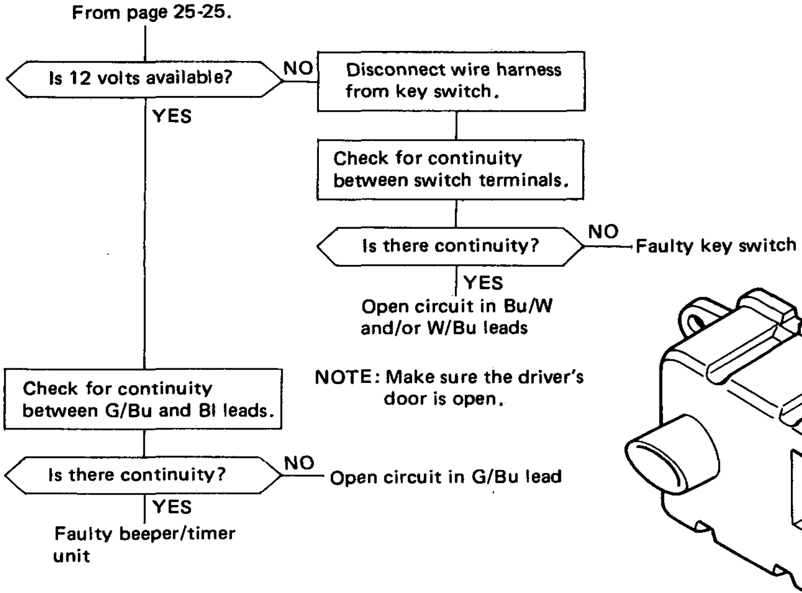

Check 55A fuse
Normal
NO
Repair and recheck.
YES
Check 45A fuse
Normal
NO
Repair and recheck.
YES
Check 15A fuse.
normal
NO
Repair and recheck.
YES
Check driver's door switch
Does switch work properly?
NO
Faulty door switch
YES
Reconnect door switch.
Disconnect wire harness from beeper/timer unit.
Check for continuity between Bl lead and body ground.
Is there continuity?
NO
Poor ground
Measure voltage between Bu/W (positive) and Bl leads.
See page 25-26.

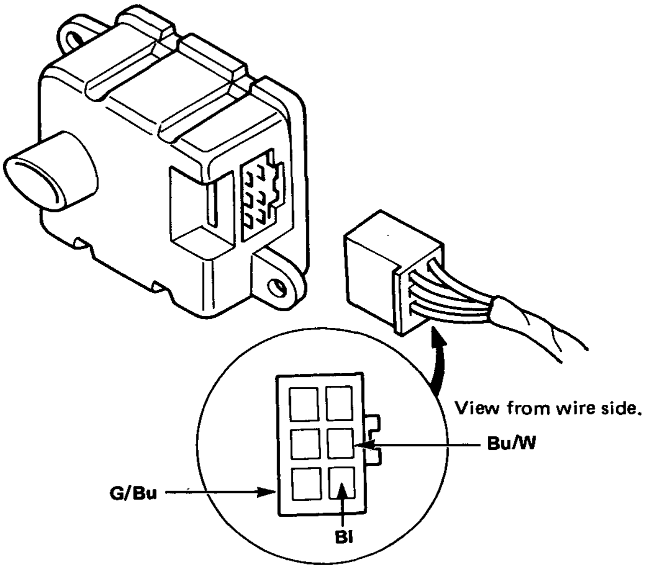
NOTE: Make sure the ignition key is inserted.

(cont'd)

Key-On Warning System

Troubleshooting (cont'd)


From page 25-25.
Is 12 volts available?
NO
Disconnect wire harness from key switch.
Check for continuity between switch terminals.
Is there continuity?
NO
Faulty key switch
YES
Open circuit in Bu/W and/or W/Bu leads
NOTE: Make sure the driver's door is open.
YES
Check for continuity between G/Bu and Bl leads.
Is there continuity?
NO
Open circuit in G/Bu lead
YES
Faulty beeper/timer unit

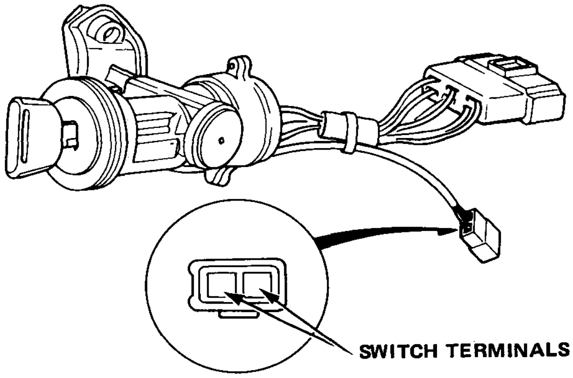

View from wire side.
Bu/W
G/Bu
Bl

2. **Beeper wont't shut off when driver's door is closed.**
   - Faulty driver's door switch (switch remains on.)
   - Short circuit in G/Bu lead
   - Faulty beeper/timer unit
3. **Beeper won't shut off when ignition key is removed.**
   - Faulty key switch (switch remains on.)

Key Switch Testing

Check for continuity.

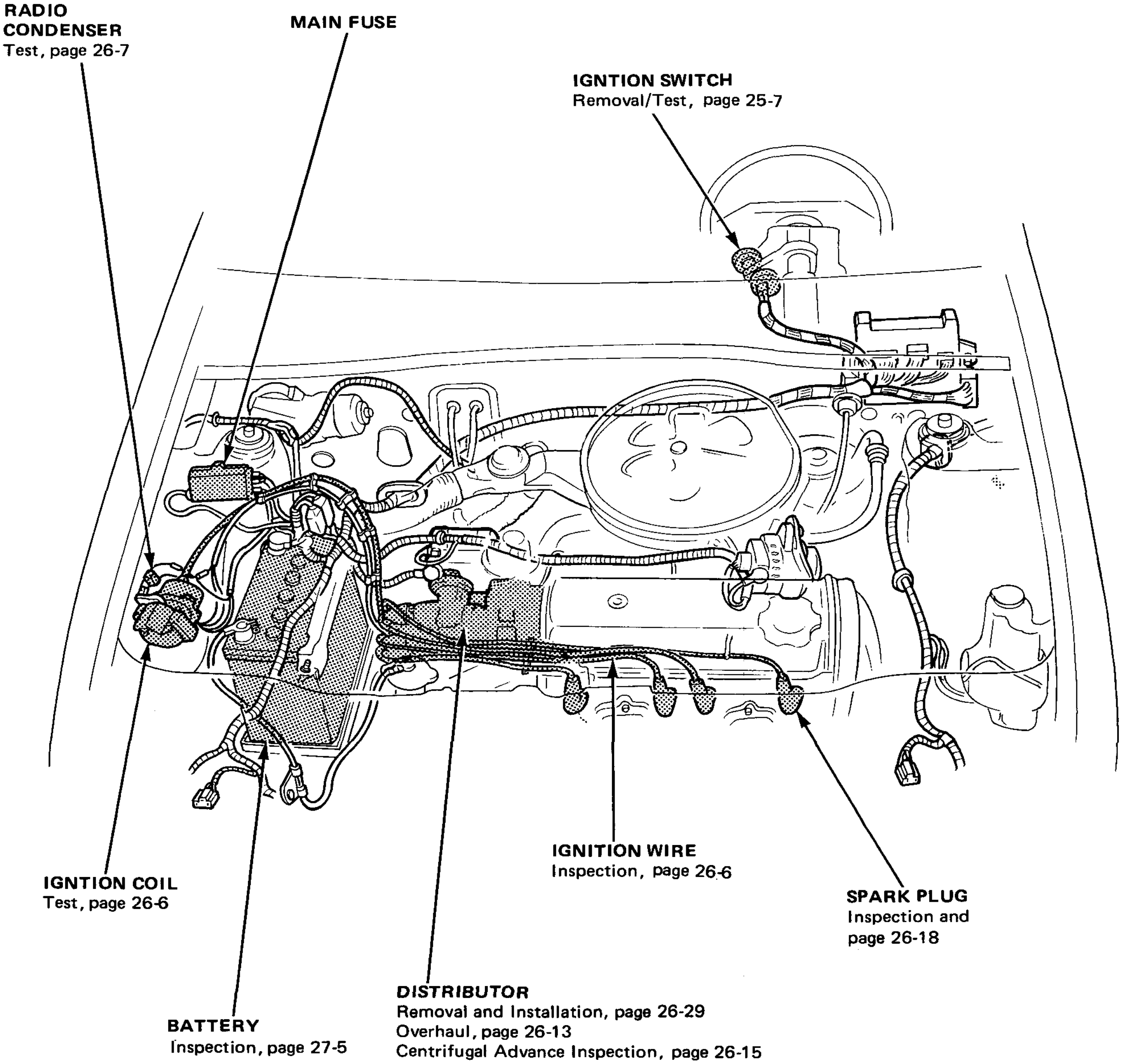
- Turn the ignition switch on, then turn ot LOCK position. There should be continuity when the ignition key is inserted.
- There should be no continuity when the ignition key is removed.


SWITCH TERMINALS

Ignition

Illustrated Index

NOTE: The carburetor model (2D H/B, 4D, and 4D H/B)is shown; the PGM-FI model (Coupe) is similar except for the location of the ignition coil.



RADIO CONDENSER
Test, page 26-7
MAIN FUSE
IGNTION SWITCH
Removal/Test, page 25-7
IGNITION WIRE
Inspection, page 26-6
IGNTION COIL
Test, page 26-6
SPARK PLUG
Inspection and
page 26-18
DISTRIBUTOR
Removal and Installation, page 26-29
Overhaul, page 26-13
Centrifugal Advance Inspection, page 26-15
Vacuum Advance Inspection, page 26-16
Timing, page 26-17
BATTERY
Inspection, page 27-5

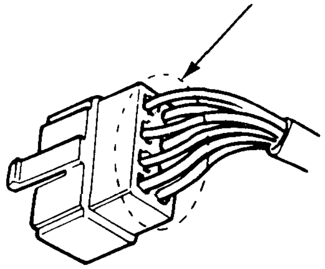
Troubleshooting Precautions

Before Troubleshooting

1. Check main fuse and fuse box for blown fuses.
2. Make sure battery posts and terminals are clean and tight.
3. Check battery for damage.
4. Check battery state of charge.
5. Check alternator belt for proper tension.
6. Check that connectors in the defective circuit are clean, properly connected, and that a pin or receptacle is not loose in a connector housing.

CAUTION:

- **Do not quick-charge a battery unless the battery ground strap has been disconnected, or you'll damage the alternator diodes.**
- **Do not attempt to crank the engine with the ground strap disconnected or you'll severely damage the wiring.**
- **Do not pull on wires when disconnecting connectors.**
- **When connecting a connector, push it until it clicks into places.**
- **After connecting connector, cover it with the connector boot if it has one.**
- **Check to make sure that multi-pin connectors are packed with grease.**

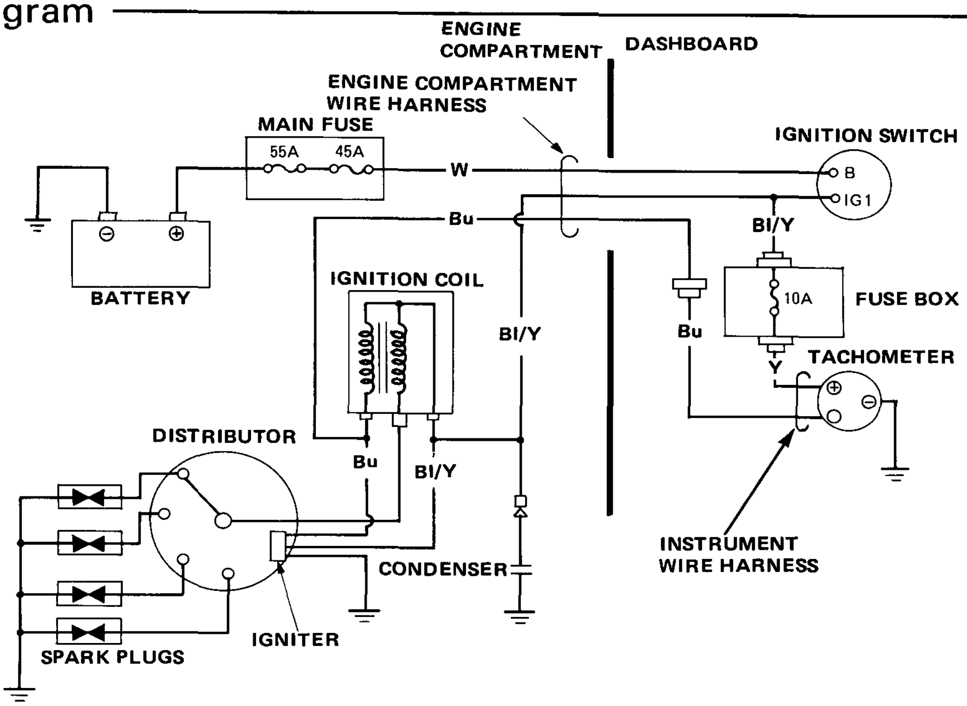

Pack with silicone grease.

- **When connecting battery terminals make sure they are clean and tightened securely.**

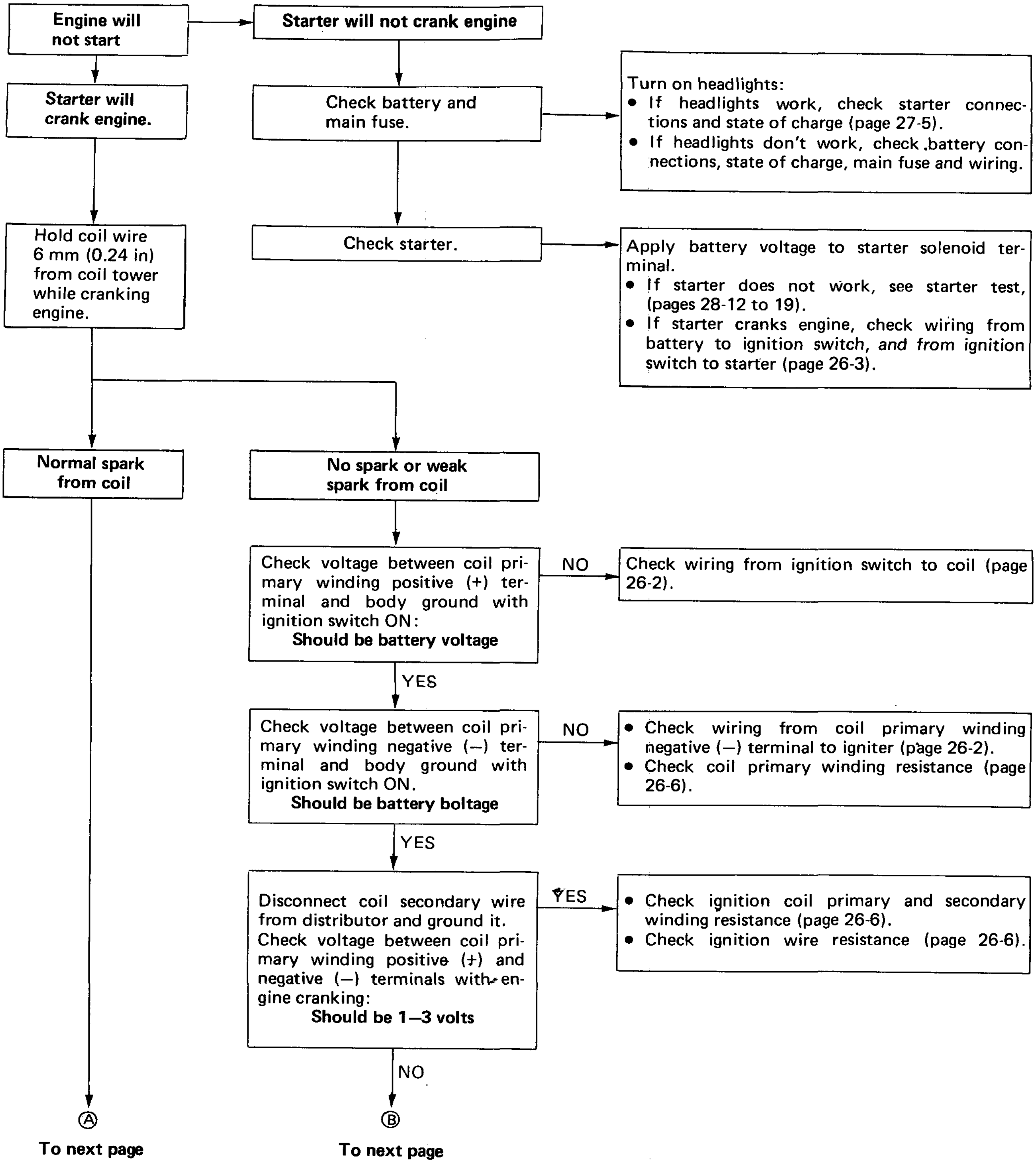
TO AVOID DAMAGING TRANSISTORIZED IGNITION

- **Never hook up (+) and (−) battery cables backwards.**
- **Do not let pulse generator wires touch ignition wires.**
- **Do not do anything that will produce abnormal pulses.**
- **Always connect pulse typ tachometer to negative (−) terminal of ignition coil.**
- **Make sure all wires and cables are connected properly.**

Wiring Diagram


ENGINE COMPARTMENT
DASHBOARD
ENGINE COMPARTMENT WIRE HARNESS
MAIN FUSE
55A
45A
W
IGNITION SWITCH
B
IG1
Bu
Bl/Y
BATTERY
⊖
⊕
IGNITION COIL
10A
FUSE BOX
Bl/Y
Bu
Y
TACHOMETER
⊕
⊖
DISTRIBUTOR
Bu
Bl/Y
CONDENSER
INSTRUMENT WIRE HARNESS
IGNITER
SPARK PLUGS

Troubleshooting



Engine will not start

Starter will not crank engine

Check battery and main fuse.

Turn on headlights:
- If headlights work, check starter connections and state of charge (page 27-5).
- If headlights don't work, check battery connections, state of charge, main fuse and wiring.

Check starter.

Apply battery voltage to starter solenoid terminal.
- If starter does not work, see starter test, (pages 28-12 to 19).
- If starter cranks engine, check wiring from battery to ignition switch, and from ignition switch to starter (page 26-3).

Starter will crank engine.

Hold coil wire 6 mm (0.24 in) from coil tower while cranking engine.

Normal spark from coil

Ⓐ

To next page

No spark or weak spark from coil

Check voltage between coil primary winding positive (+) terminal and body ground with ignition switch ON:
Should be battery voltage

Check wiring from ignition switch to coil (page 26-2).

Check voltage between coil primary winding negative (–) terminal and body ground with ignition switch ON.
Should be battery boltage

- Check wiring from coil primary winding negative (–) terminal to igniter (page 26-2).
- Check coil primary winding resistance (page 26-6).

Disconnect coil secondary wire from distributor and ground it.
Check voltage between coil primary winding positive (+) and negative (–) terminals with engine cranking:
Should be 1–3 volts

- Check ignition coil primary and secondary winding resistance (page 26-6).
- Check ignition wire resistance (page 26-6).

Ⓑ

To next page

From previous page

Ⓐ

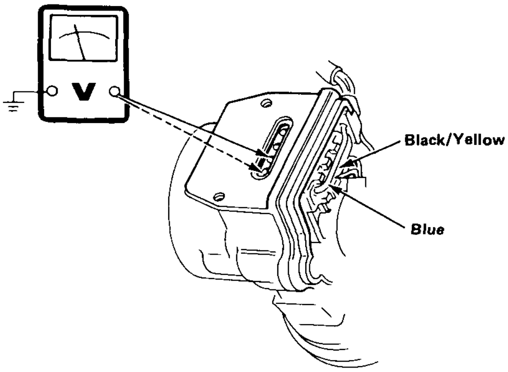
From previous page

Ⓑ

Disconnect lead wires from igniter unit. Check voltage between blue wire (and black/yellow wire) and body ground with ignition switch ON:
Should be battery voltage.

NO

Check wiring from ignition coil to igniter unit.



YES

Disconnect lead wires from igniter unit. Check continuity between terminals of igniter unit. (page 26-7).

If OK, go on to next check. If not OK, replace igniter unit.

Replace igniter unit and repeat spark test.

Hold spark plug wire terminal 6 mm (0.24 in.) away from spark plug while cranking engine.

Spark at plug.

Check spark plug:
Inspect, page 26-18

Check ignition timing:
Set No. 1 piston at TDC and note position of distributor.
(Rotor should point to No. 1 wire).
Check that plug wires are routed properly: 1-3-4-2 clockwise.

- **Check fuel system:**
  See section 11.
- **Check valve timing:**
  See page 6-21.

No spark at plug.

Check condition of ignition wires.

Check for:
- Cut or damaged insulation.
- Loose or damaged terminal.
- Open circuit or high resistance (page 26-6).

Inspect distributor cap.

Check for:
- Cracks and tracking:
- Weak carbon brush spring.
- Rough or dirty cap terminals (check inside and outside).

Inspect distributor rotor.

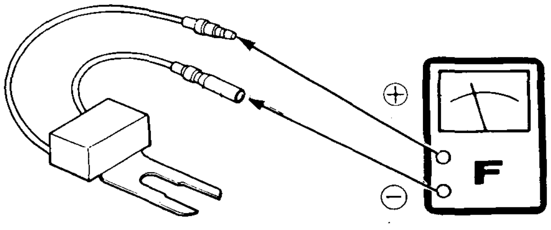
Check for:
- Rough or dirty rotor tip.
- Grounded rotor at distributor shaft.

Replace igniter unit and repeat spark test.

Radio Condenser Capacity Test

Use a commercially available condenser tester.

Condenser Capacity:
0.47 ± 0.09 microfarads (μF)

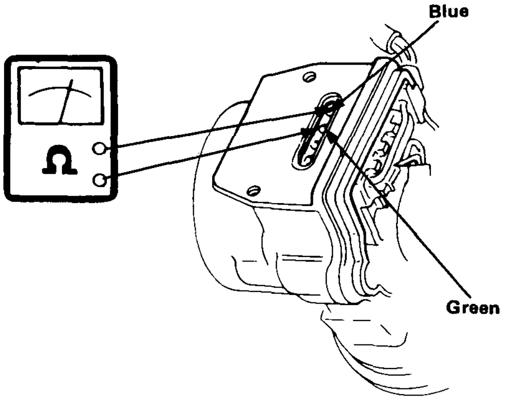


NOTE: The radio condenser is intended to reduce ignition noise; however, condenser failure may cause the engine to stop running.

Pick-up Coil Test

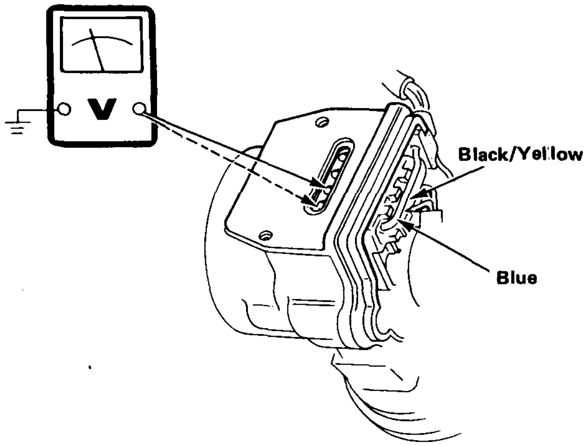
Connect ohmmeter probes to the blue and green wire terminals and measure resistance.

Pick-up Coil Resistance:
Approx. 750 ohms at 20°C (70°F)

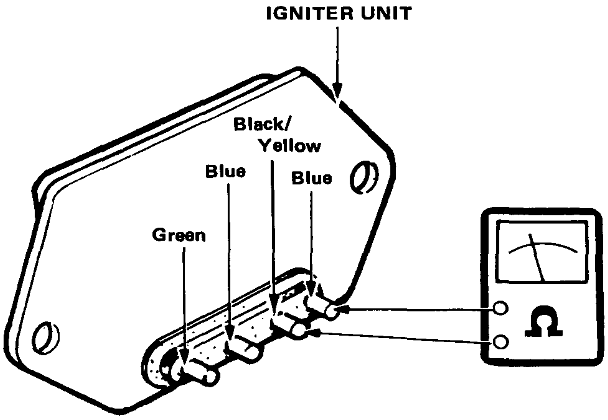


Igniter Unit Test

1. Disconnect lead wires from igniter unit. Check voltage between blue wire and body ground, then black/yellow wire and body ground, with ignition switch ON. There should be battery voltage.

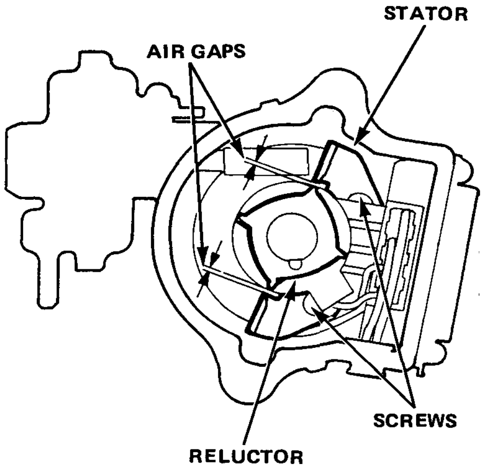


2. With lead wires disconnected, check continuity between igniter unit terminals using ohmmeter. (R x 100 scale)
   There should be no continuity with positive probe to black/yellow wire terminal and negative probe to blue wire terminal.
   There should be continuity with positive probe to blue wire terminal and negative probe to black/yellow wire terminal.

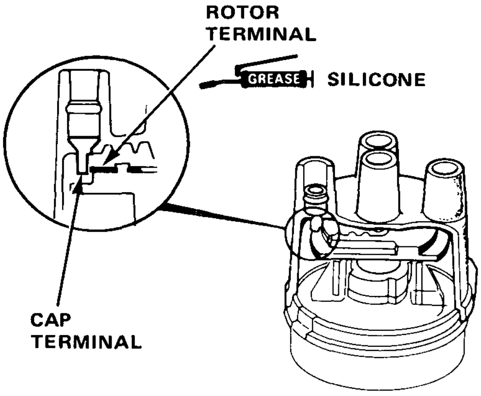


Distributor Top End Inspection

1. Check to be sure that the air gaps are equal.
2. If necessary, back off the screws and move stator as required to adjust.

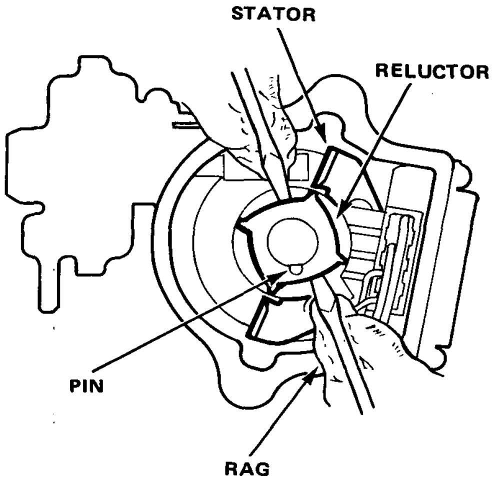

STATOR
AIR GAPS
SCREWS
RELUCTOR

3. Check for rough or pitted rotor and cap terminals.
4. Scrape or file off carbon deposits.
   Smooth rotor terminal with an oil stone or No. 600 sandpaper if rough.
5. Apply a thin coat of silicone grease to the tip of the rotor.


ROTOR TERMINAL
GREASE
SILICONE
CAP TERMINAL

Reluctor Replacement

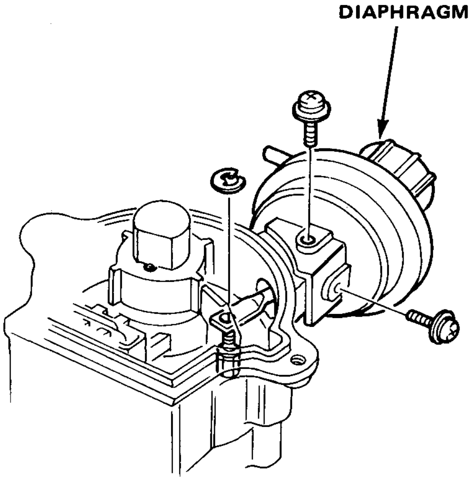
1. Carefully pry up reluctor by using two screwdrivers as shown. Do not damage reluctor and stator.


STATOR
RELUCTOR
PIN
RAG

2. When installing reluctor, be sure to drive in pin with its gap away from shaft.

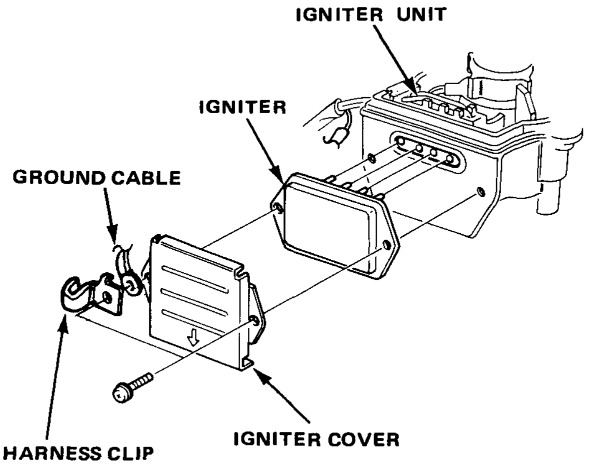
Advance Diaphragm Removal

1. Remove the advance diaphragm mount screws.
2. Disconnect the diaphragm arm then pull diaphragm out of distributor.

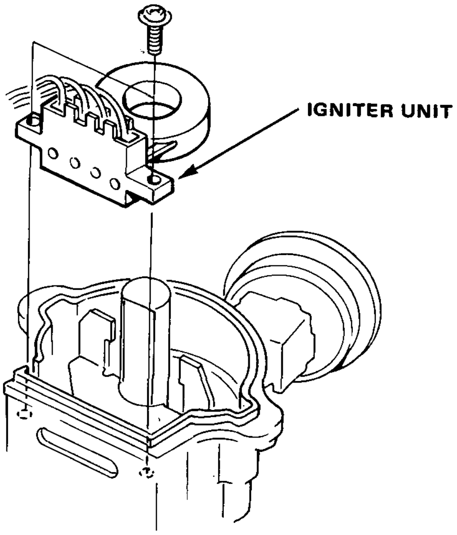


Igniter Unit Replacement

1. Remove the igniter cover and pull out the igniter squarely against the distributor.

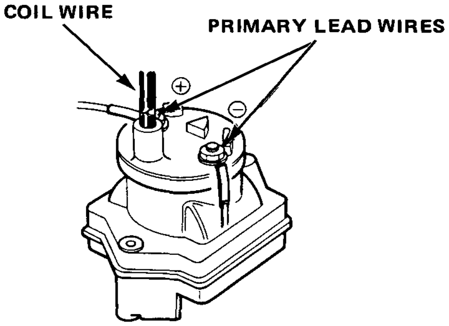

IGNITER UNIT
IGNITER
GROUND CABLE
HARNESS CLIP
IGNITER COVER

2. Remove the reluctor (see page 26-8) and pull the igniter unit out from the rotor shaft by removing the screws.

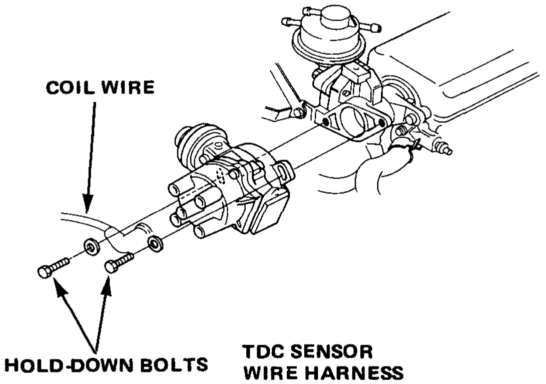

IGNITER UNIT

Distributor Removal

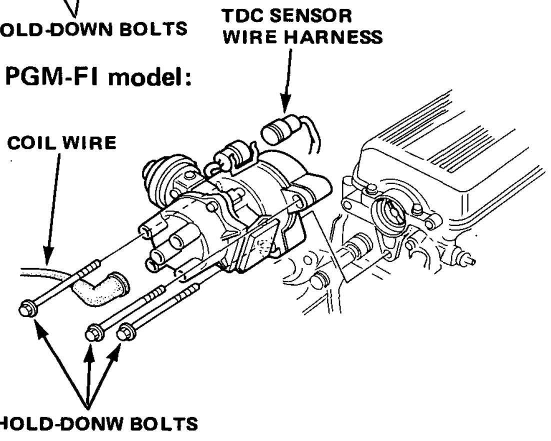
1. Disconnect the spark plug wires.
2. Disconnect the hoses from the advance diaphragm.
3. Disconnect the coil wire and the primary lead wires from the ignition coil.
4. Remove the distributor hold-down bolts, and remove the distributor from the cylinder head.


COIL WIRE
PRIMARY LEAD WIRES
⊕
⊖

Carburetor model:


COIL WIRE
HOLD-DOWN BOLTS

PGM-FI model:

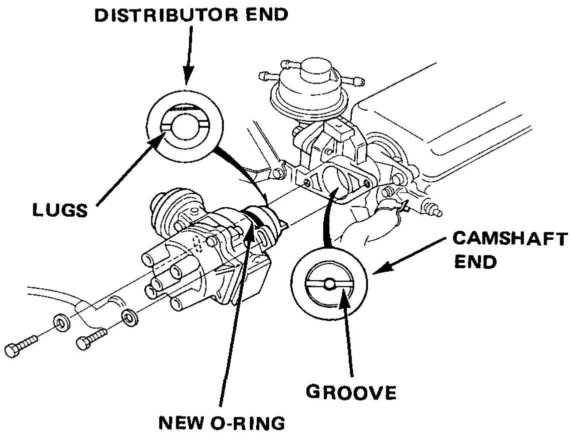

TDC SENSOR WIRE HARNESS
COIL WIRE
HOLD-DONW BOLTS

Distributor Installation

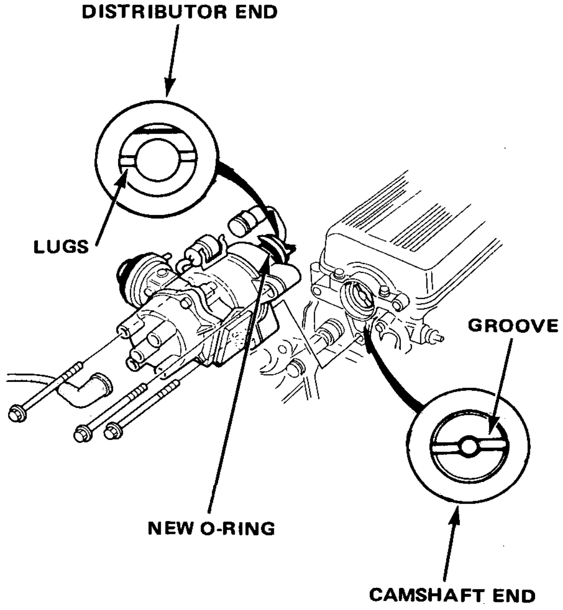
1. Install a new O-ring on the distributor housing.
2. Slip the distributor into position.

   NOTE: The lugs on the end of the distributor and its mating grooves in the camshaft end are both offset to eliminate the possibility of installing the distributor 180° out of time.

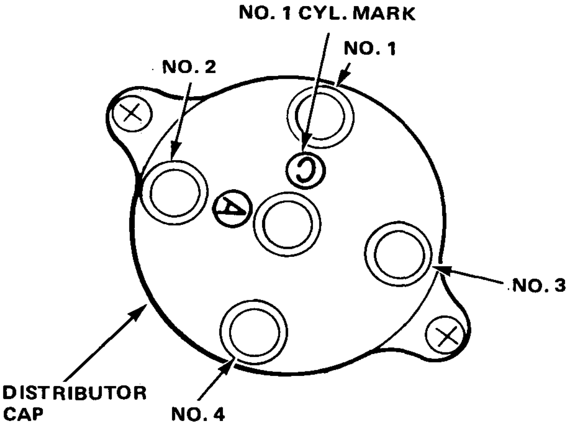
Carburetor model:


DISTRIBUTOR END
LUGS
CAMSHAFT END
GROOVE
NEW O-RING

PGM-FI model:


DISTRIBUTOR END
LUGS
GROOVE
NEW O-RING
CAMSHAFT END

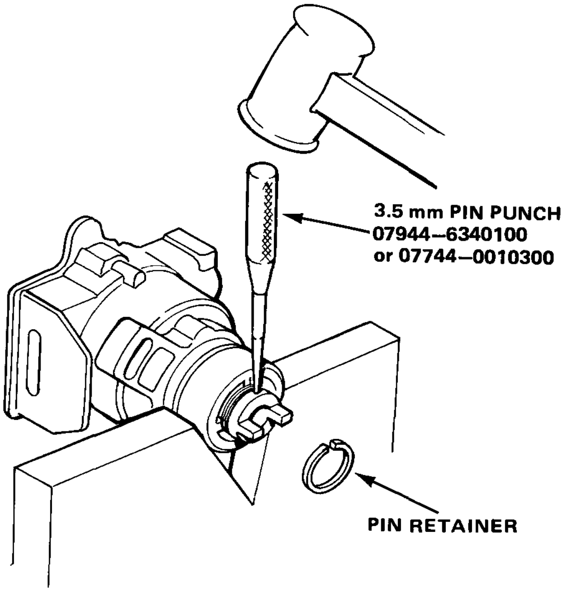
3. Install the adjusting bolts and tighten temporarily. *Final tightening should be done after the timing has been adjusted.*
4. Connect the plug wires as shown.


NO. 1 CYL. MARK
NO. 2
NO. 1
NO. 3
DISTRIBUTOR CAP
NO. 4

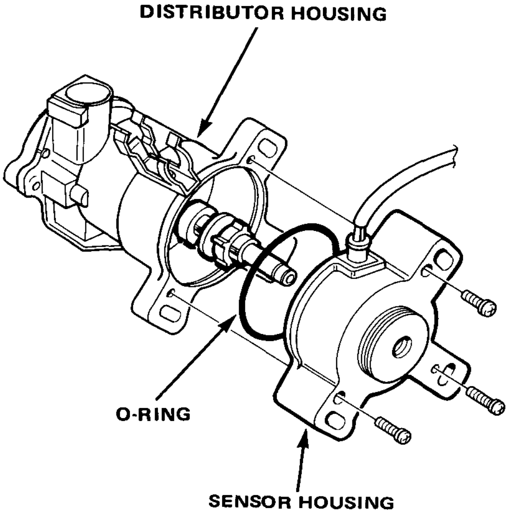
5. Set the timing with a timing light as shown on page 26-17.

Distributor Shaft Removal

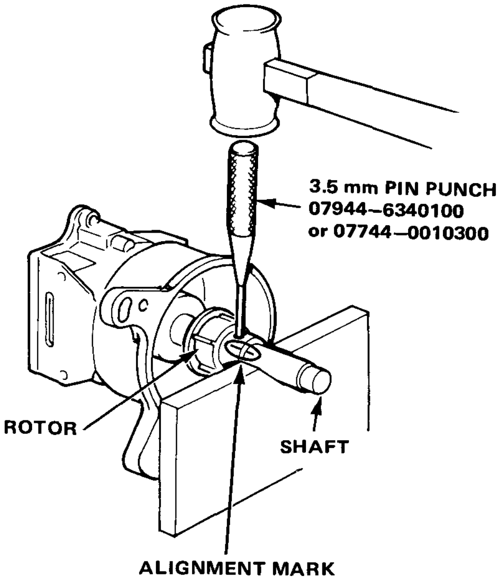
1. Slide off the pin retainer being careful not to stretch it.
2. Pull the coupling out of the shaft by driving out roll pin as shown.


3.5 mm PIN PUNCH
07944–6340100
or 07744–0010300
PIN RETAINER

3. For PGM-FI model, separate the sensor housing and the distributor housing by removing the 3 screws.

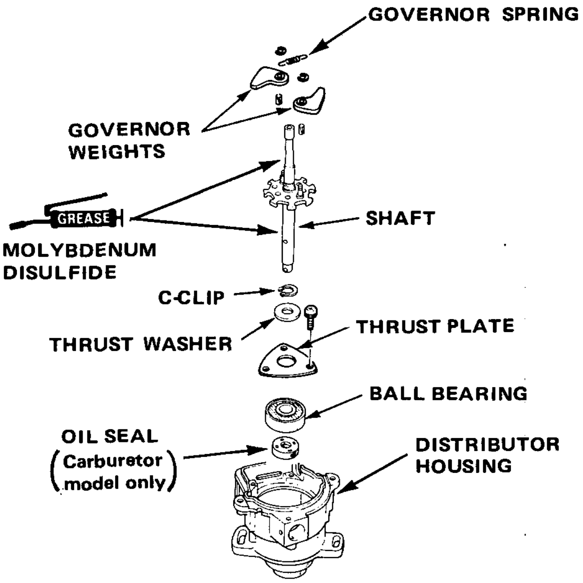

DISTRIBUTOR HOUSING
O-RING
SENSOR HOUSING

4. For PGM-FI model, drive out roll pin after scribing an alignment mark on the rotor and the shaft. Then carefully pry up the rotor by using two screwdrivers. Do not damage the rotor.

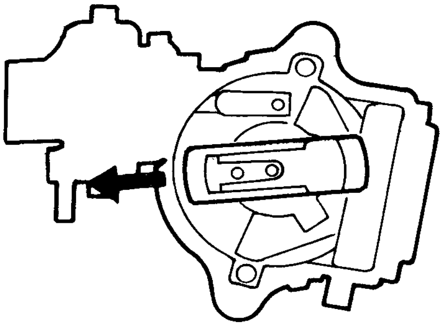

3.5 mm PIN PUNCH
07944–6340100
or 07744–0010300
ROTOR
SHAFT
ALIGNMENT MARK

Distributor Shaft Installation

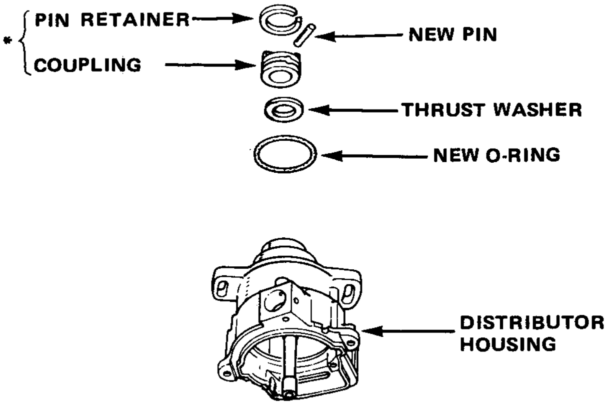
1. Hold the ball bearing and the thrust plate in the distributor housing, and install the governor weights on the shaft.
2. Grease the shaft and install it in the distributor housing.


GOVERNOR SPRING
GOVERNOR WEIGHTS
GREASE
MOLYBDENUM DISULFIDE
SHAFT
C-CLIP
THRUST WASHER
THRUST PLATE
BALL BEARING
OIL SEAL (Carburetor model only)
DISTRIBUTOR HOUSING

3. For PGM-FI model, install the sensor rotor on the shaft, and align it with the mark made in page 26-11. Now, drive in a new pin. Then unit the distributor housing and the sensor housing.
4. Install the rotor, then turn it so that it faces in the direction shown (forward No. 1 cylinder).



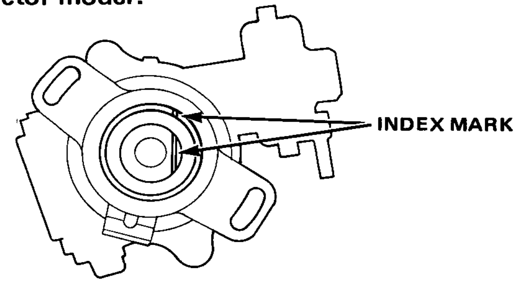
5. Turn the distributor upside down and install the thrust washer and coupling on the shaft and a new O-ring on the housing.


PIN RETAINER
COUPLING
NEW PIN
THRUST WASHER
NEW O-RING
DISTRIBUTOR HOUSING

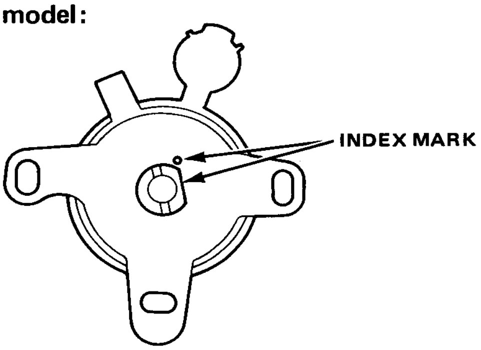
* : Install in step 6.

6. Check that the rotor is still pointing toward No. 1 cylinder, then align the index mark on the housing with the index mark on the coupling. Now, drive in a new pin and secure it with the pin retainer.

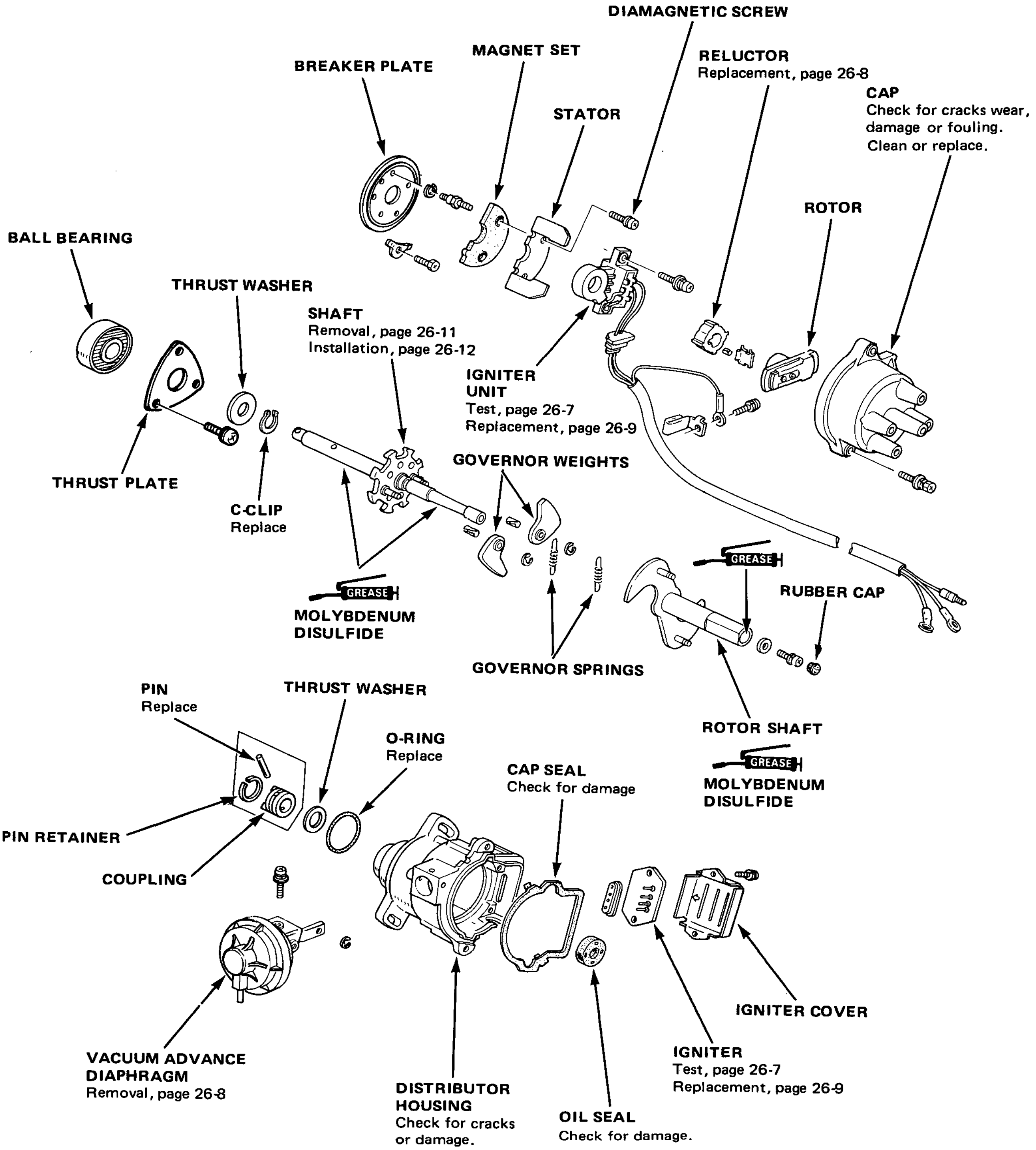
Carburetor model:



PGM-FI model:

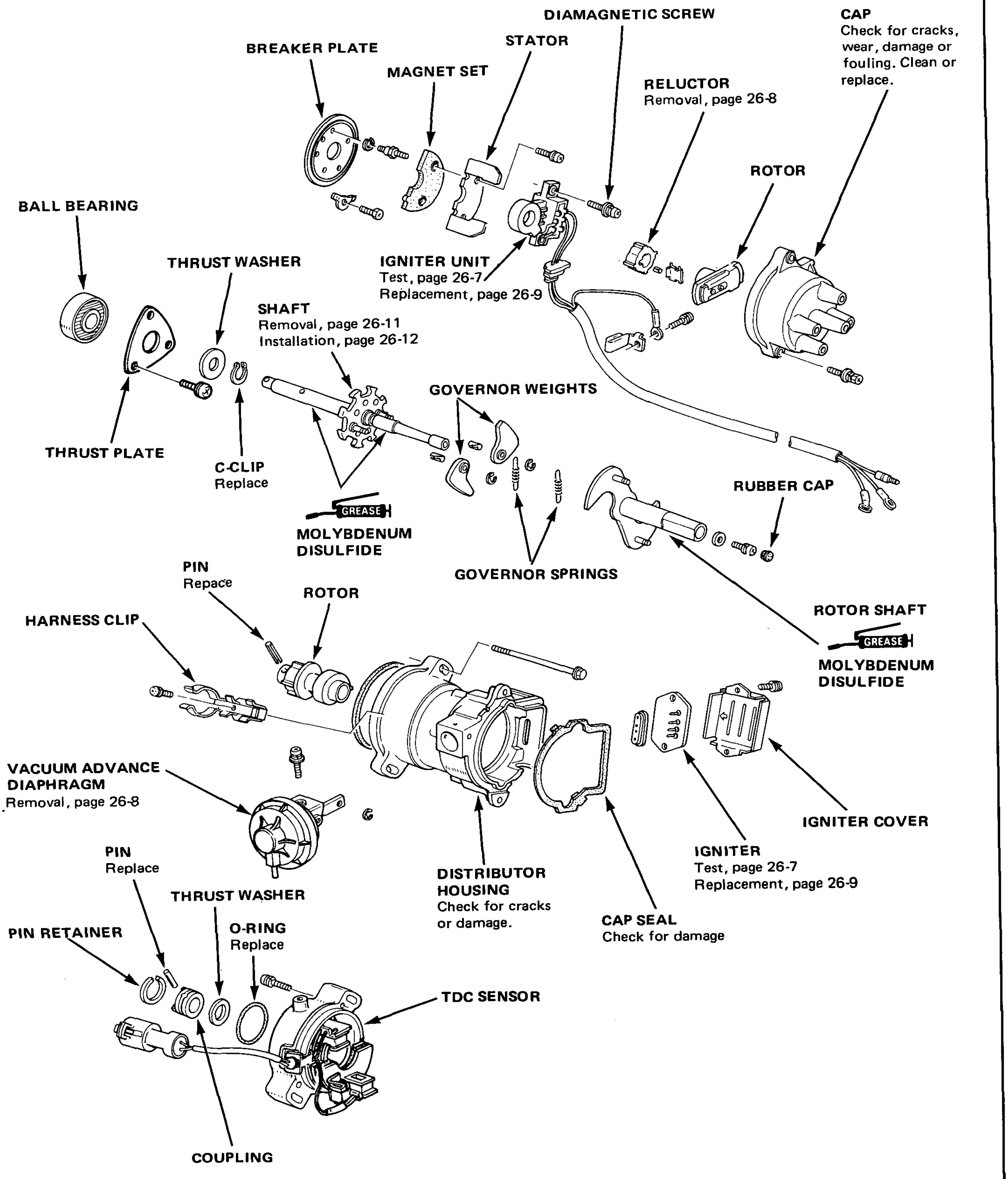


Distributor Overhaul (Carburetor model)


DIAMAGNETIC SCREW
MAGNET SET
BREAKER PLATE
RELUCTOR
Replacement, page 26-8
CAP
Check for cracks wear, damage or fouling. Clean or replace.
STATOR
ROTOR
BALL BEARING
THRUST WASHER
SHAFT
Removal, page 26-11
Installation, page 26-12
IGNITER UNIT
Test, page 26-7
Replacement, page 26-9
THRUST PLATE
C-CLIP
Replace
GOVERNOR WEIGHTS
GREASE
MOLYBDENUM DISULFIDE
GREASE
RUBBER CAP
GOVERNOR SPRINGS
PIN
Replace
THRUST WASHER
ROTOR SHAFT
O-RING
Replace
GREASE
CAP SEAL
Check for damage
MOLYBDENUM DISULFIDE
PIN RETAINER
COUPLING
IGNITER COVER
VACUUM ADVANCE DIAPHRAGM
Removal, page 26-8
IGNITER
Test, page 26-7
Replacement, page 26-9
DISTRIBUTOR HOUSING
Check for cracks or damage.
OIL SEAL
Check for damage.

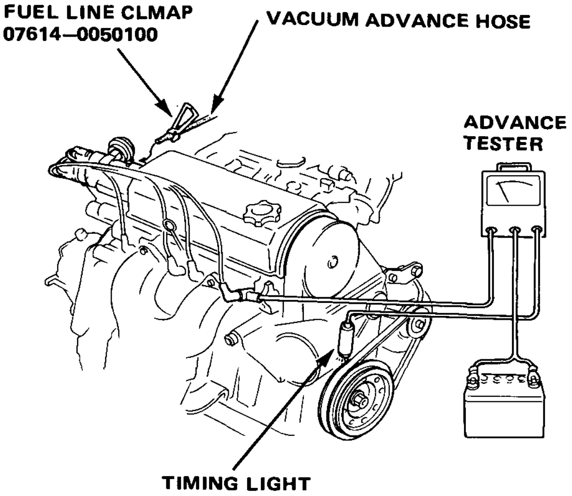
Ignition

Distributor Overhaul (PGM-FI model)

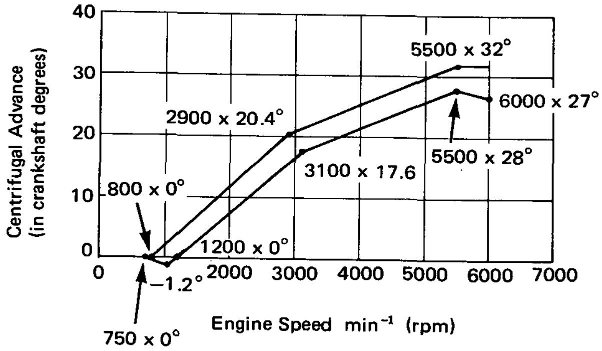

DIAMAGNETIC SCREW
CAP
Check for cracks, wear, damage or fouling. Clean or replace.
STATOR
BREAKER PLATE
MAGNET SET
RELUCTOR
Removal, page 26-8
ROTOR
BALL BEARING
THRUST WASHER
IGNITER UNIT
Test, page 26-7
Replacement, page 26-9
SHAFT
Removal, page 26-11
Installation, page 26-12
GOVERNOR WEIGHTS
THRUST PLATE
C-CLIP
Replace
RUBBER CAP
GREASE
MOLYBDENUM DISULFIDE
PIN
Repace
GOVERNOR SPRINGS
ROTOR
HARNESS CLIP
ROTOR SHAFT
GREASE
MOLYBDENUM DISULFIDE
VACUUM ADVANCE DIAPHRAGM
Removal, page 26-8
IGNITER COVER
PIN
Replace
IGNITER
Test, page 26-7
Replacement, page 26-9
DISTRIBUTOR HOUSING
Check for cracks or damage.
THRUST WASHER
PIN RETAINER
O-RING
Replace
CAP SEAL
Check for damage
TDC SENSOR
COUPLING

Centrifugal Advance Inspection

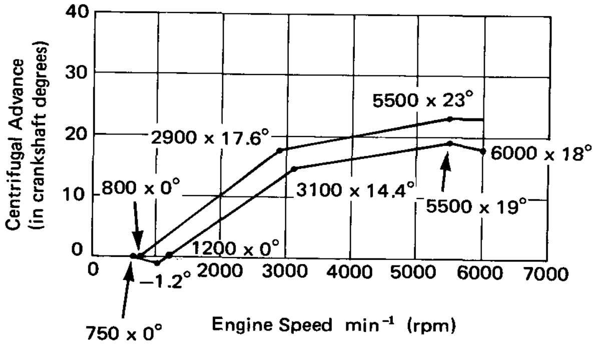
1. Disconnect vacuum advance hose from distributor, and pinch end of hose using fuel line clamp, 07614-0050100.
2. Connect timing light and start engine.
3. Increase rpm. Timing mark (T) should appear to move past the pointer toward the firewall, indicating an increase ignition advance. If not, check centrifugal advance mechanism for sticking or binding.


FUEL LINE CLMAP
07614—0050100
VACUUM ADVANCE HOSE
ADVANCE TESTER
TIMING LIGHT

Carburetor model
(TYPE: TD-10I, TD-13I, and TD-14I)



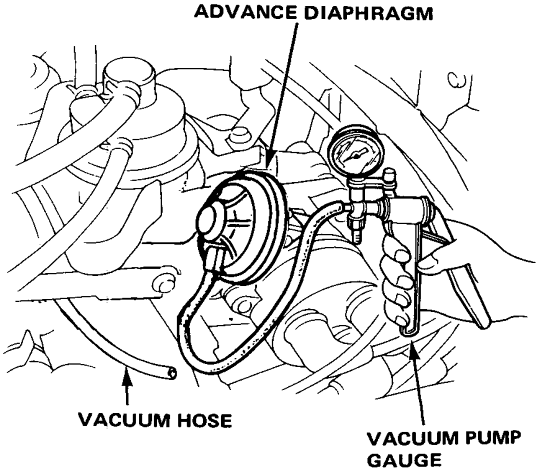
PGM-FI model
(TYPE: TD-03J)



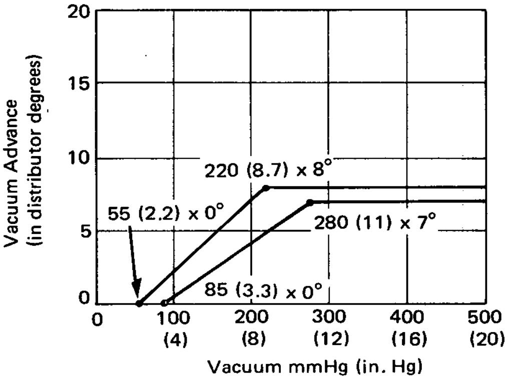
Vacuum Advance Inspection

1. Remove distributor cap.
2. Disconnect vacuum hose from distributor advance diaphragm.
3. Connect vacuum pump to the diaphragm and gradually draw a vacuum while watching breaker plate movement. Check for smooth operation with no evidence of binding.

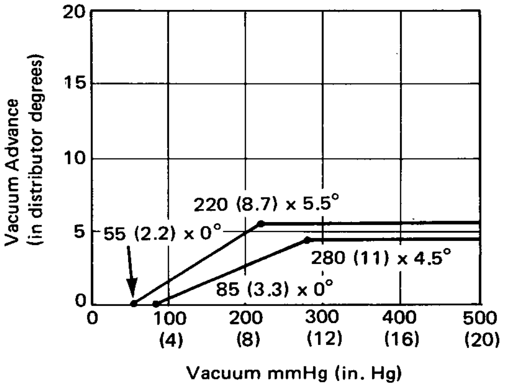
   NOTE: If vacuum pump gauge indicates a loss of vacuum, diaphragm is defective.
4. Turn breaker plate right and left to check for freedom of movement.
5. If inspections 1 – 4 reveal no abnormality, check the vacuum from the vacuum hose.



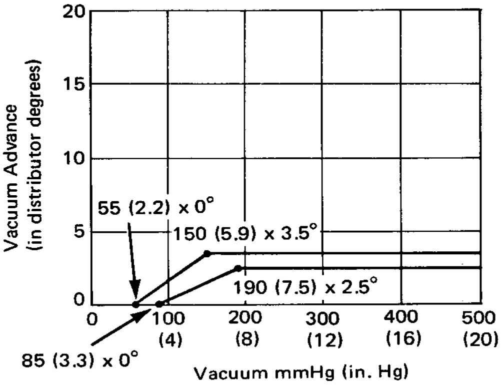
1.2 ℓ Carburetor model
(TYPE: TD-13I)



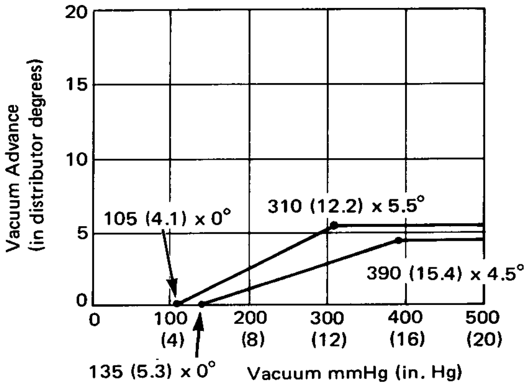
1.3ℓ Carburetor model and
1.5ℓ Carburetor model (except KC model-M/T)
(TYPE: TD-10I)



1.5ℓ Carburetor model (KC model-M/T only)
(TYPE: TD-14I)

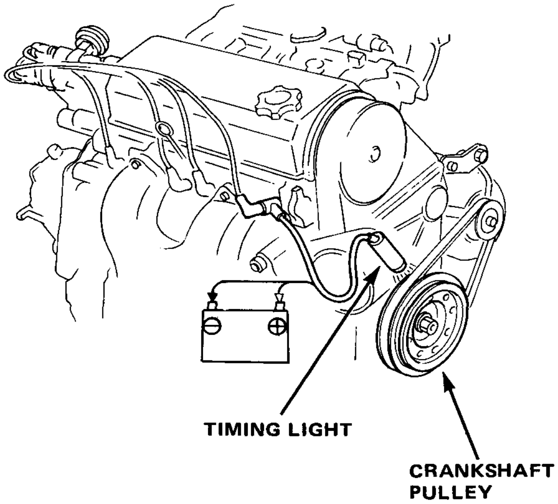


1.5ℓ PGM-FI model
(TYPE: TD-03J)

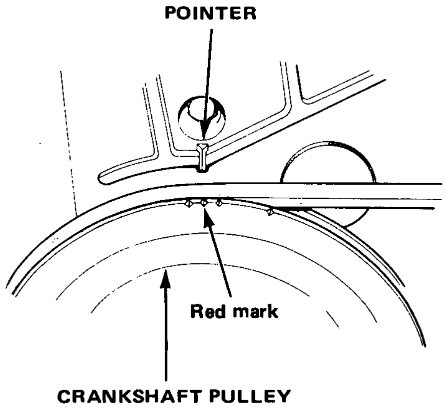


Ignition Timing

1. Connect the timing light to the engine.


TIMING LIGHT
CRANKSHAFT PULLEY

2. Start the engine and allow it to warm up (cleaning fan comes on), then point the timing light toward the pointer on the timing belt cover.


POINTER
Red mark
CRANKSHAFT PULLEY

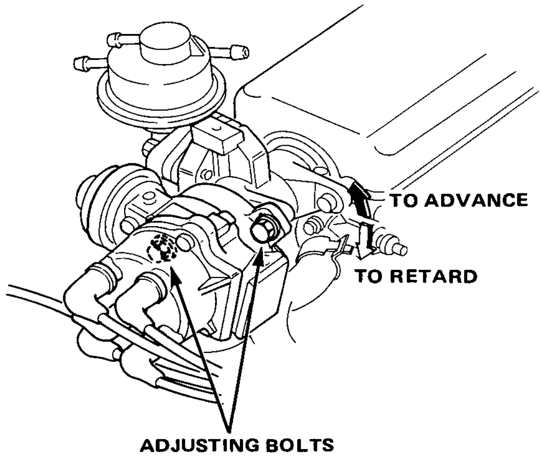
3. Adjust ignition timing, if necessary, to the following specifications:

All models: Red mark at idle
(manual in neutral; automatic in gear)

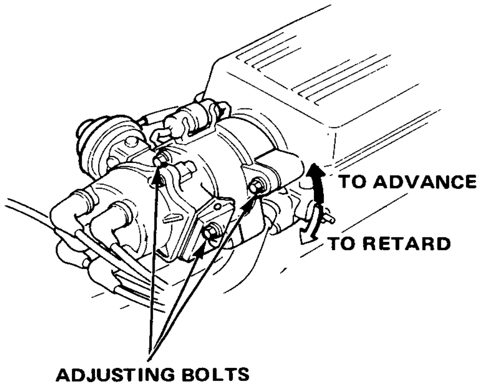
Idle Speed: Manual 750 ± 50 min^{-1} (rpm)
Automatic 700 ± 50 min^{-1} (rpm)

4. Loosen distributor adjusting bolt, and turn distributor housing counterclockwise to advance timing or clockwise to retard timing.

Carburetor model:


TO ADVANCE
TO RETARD
ADJUSTING BOLTS

PGM-FI model:

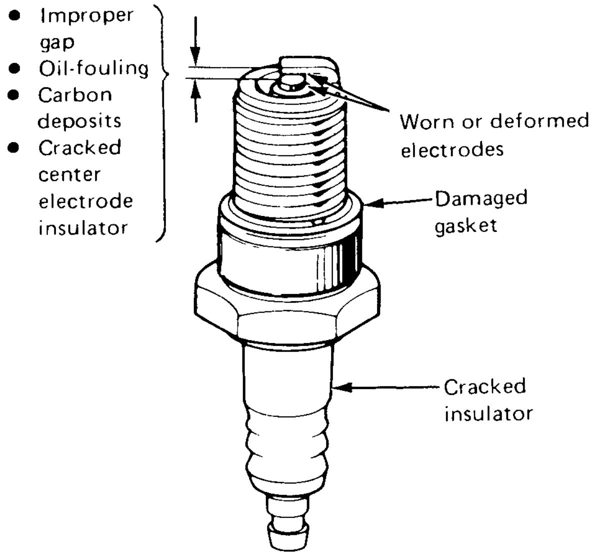

TO ADVANCE
TO RETARD
ADJUSTING BOLTS

5. Tighten the adjusting bolt.

6. Recheck the timing.

Spark Plug Inspection

1. Inspect electrodes and ceramic insulator for:



- Improper gap
- Oil-fouling
- Carbon deposits
- Cracked center electrode insulator

Worn or deformed electrodes

Damaged gasket

Cracked insulator

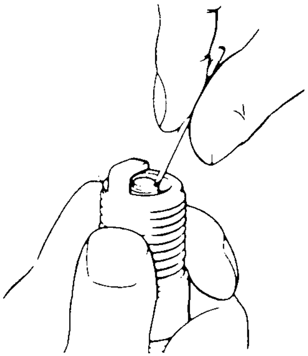
Burned or worn electrodes may be caused by:

- Lean fuel mixture
- Advanced ignition timing
- Loose spark plug
- Incorrect heat range plug

Fouled plug may be caused by:

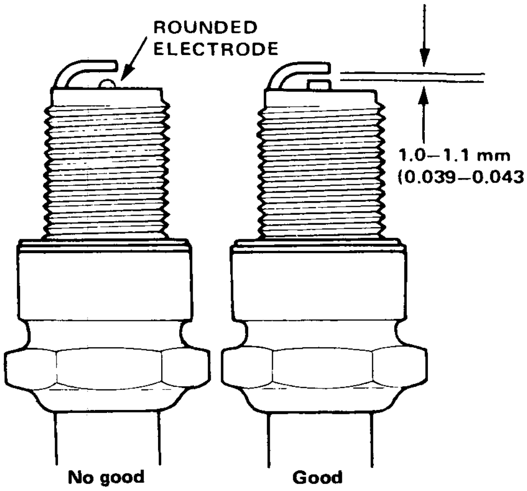
- Rich fuel mixture
- Retarded ignition timing
- Oil in combustion chamber
- Incorrect spark plug gap

2. Clean electrodes in spark plug cleaning machine, or with a wire brush. Clean between outer shell and center insulator with stiff wire as shown. Clean plug threads with a wire brush.



3. Replace plug if center electrode is rounded as shown below.

Standard Plug:
Canadian and European models:
NGK BPR6EY-11
ND W20EXR-U11
Other models:
NGK BP6EY-11
ND W20EX-U11



ROUNDED ELECTRODE
1.0–1.1 mm (0.039–0.043 in.)
No good
Good

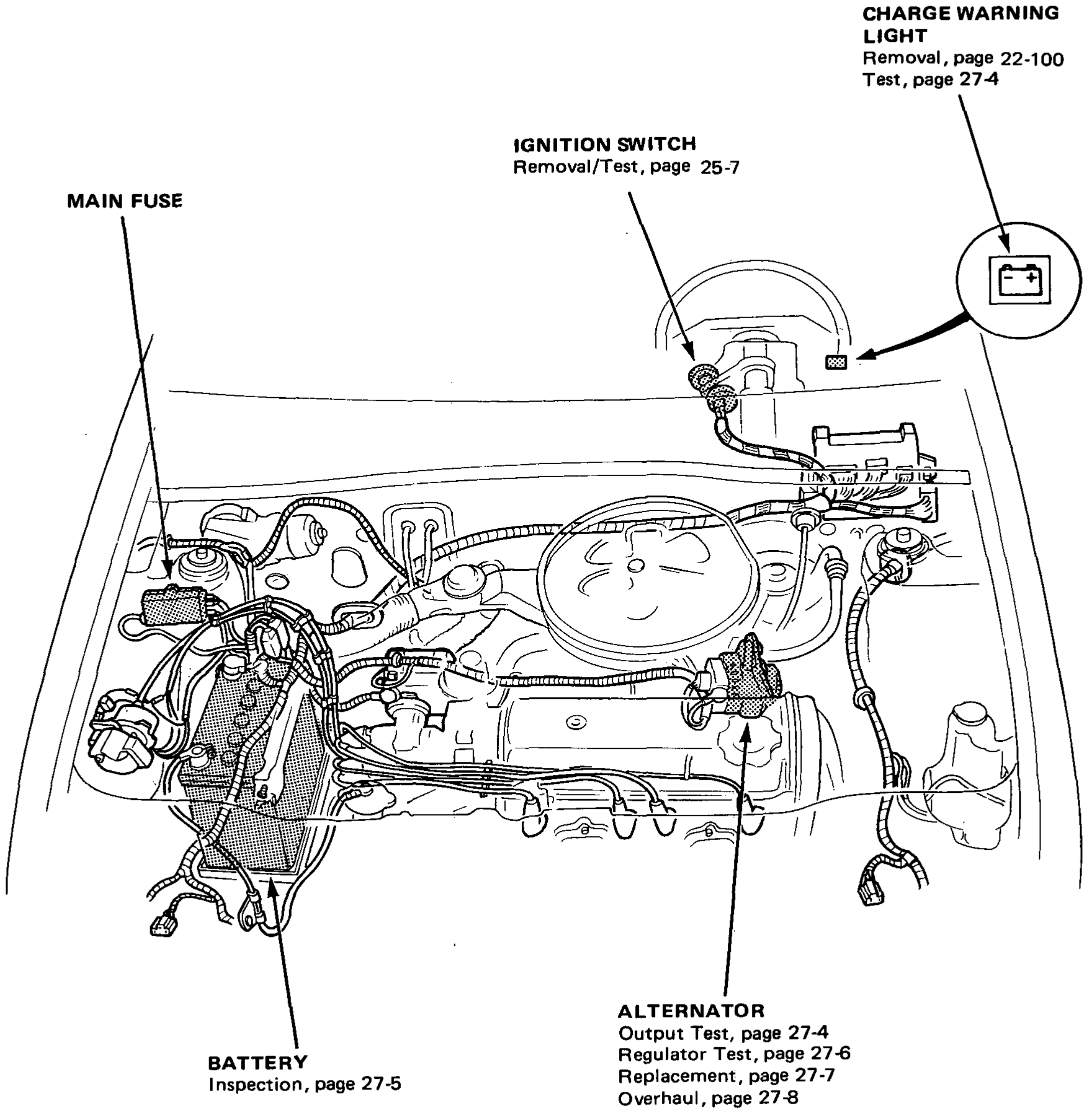
4. Adjust gap with suitable gapping tool.

Electrode Gap: 1.0–1.1 mm (0.039–0.043 in.)

5. Screw plugs into cylinder head finger tight, then torque them to 18 N·m (1.8 kg-m, 13 lb-ft).

NOTE: Apply a small quantity of anti-seize compound to plug threads before installing.

Illustrated Index


CHARGE WARNING LIGHT
Removal, page 22-100
Test, page 27-4
IGNITION SWITCH
Removal/Test, page 25-7
MAIN FUSE
BATTERY
Inspection, page 27-5
ALTERNATOR
Output Test, page 27-4
Regulator Test, page 27-6
Replacement, page 27-7
Overhaul, page 27-8

Troubleshooting Precautions

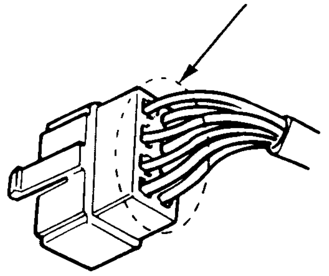
Before Troubleshooting:

1. Check main fuse and fuse box for blown fuses.
2. Make sure battery posts and terminals are clean and tight.
3. Check battery for damage.
4. Check battery state of charge.
5. Check alternator belt for proper tension.
6. Check that connectors in the defective circuit are clean, properly connected, and that a pin or receptacle is not loose in a connector housing.

CAUTION:

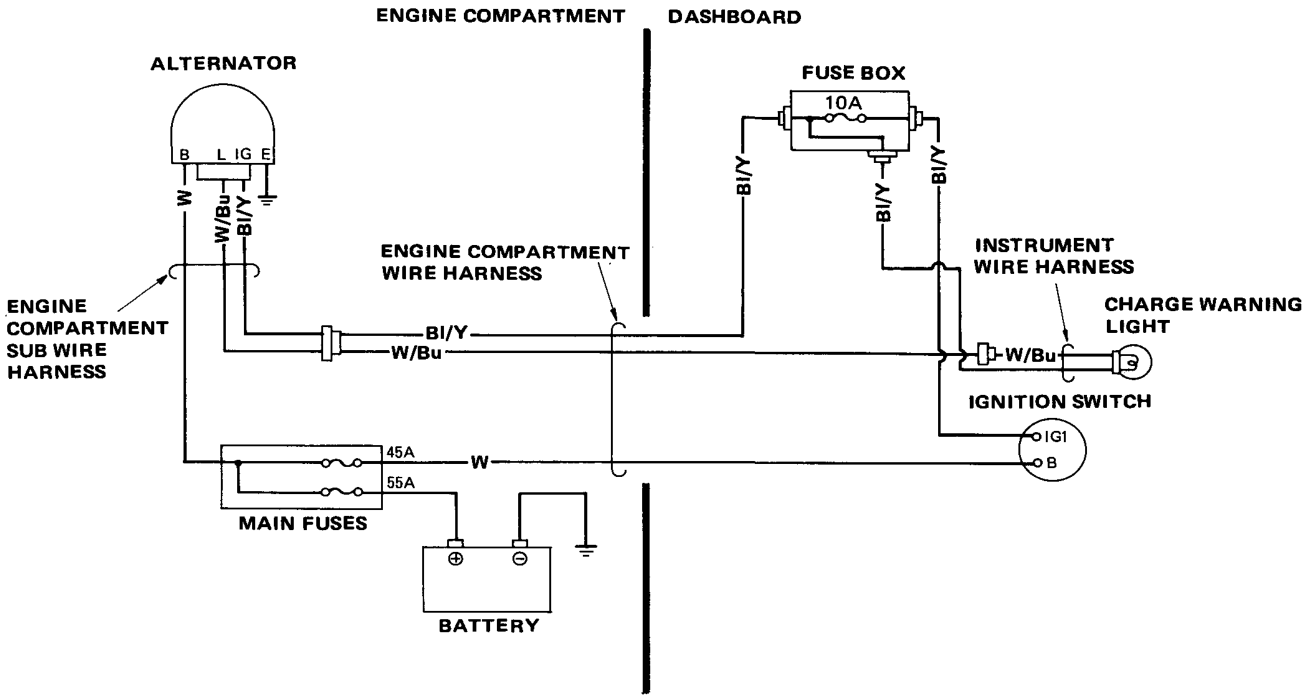
- **Do not quick-charge a battery unless the battery ground strap has been disconnected, or you will damage the alternator diodes.**
- **Do not attempt to crank the engine with the ground strap disconnected or you will severely damage the wiring.**
- **Do not pull on wires when disconnecting connectors.**
- **When connecting a connector, push it until it clicks into place.**
- **Check to make sure that multi-pin connectors are packed with grease.**

Pack with silicone grease



- **When connecting battery terminals make sure they are clean and tightened securely.**

Wiring Diagram


ENGINE COMPARTMENT
DASHBOARD
ALTERNATOR
B
L
IG
E
W
W/Bu
Bl/Y
FUSE BOX
10A
Bl/Y
Bl/Y
Bl/Y
ENGINE COMPARTMENT WIRE HARNESS
INSTRUMENT WIRE HARNESS
CHARGE WARNING LIGHT
ENGINE COMPARTMENT SUB WIRE HARNESS
Bl/Y
W/Bu
W/Bu
IGNITION SWITCH
IG1
B
45A
55A
W
MAIN FUSES
⊕
⊖
BATTERY

Charging

Specifications

Battery:

Type	Model	Voltage and Output
NX100S6 (S)	KC, KB, KG, KS, KW, KX	12V–47AH
NS60(S)	KF, KE	12V–45AH
N40	KP, KD, KT, KU, KY, KQ	12V–40AH

Alternator:

Nominal output: 55A

Direction of rotation: Counterclockwise as viewed from pulley-side

Regulator (Built-in type):

Type: IC
Regulated voltage: 13.9–15.1 V

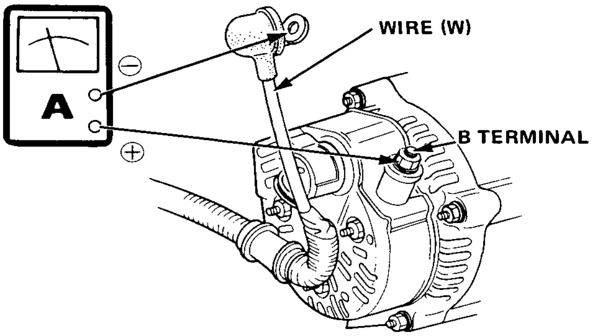
Charge Warning Light Test

NOTE: Before testing, check the wire harness connections and alternator belt tension.

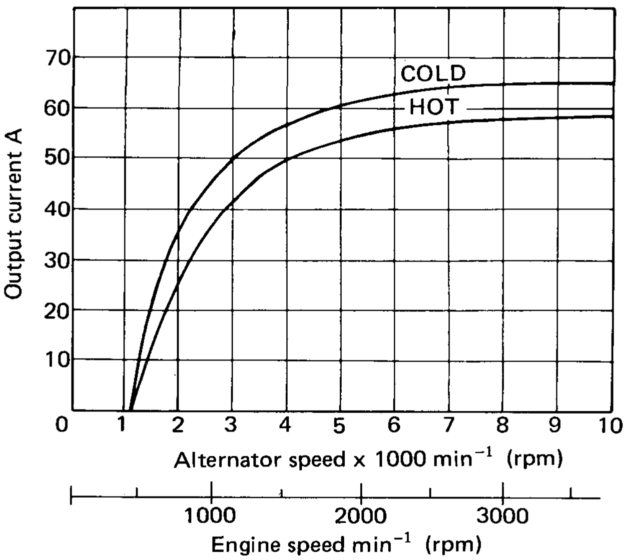
1. Turn the ignition switch on. The charge warning light should come on.
   If it does not come on, unplug the voltage regulator connector and short the pin of the white/blue wire to ground.
   - If the warning light still does not come on, check the fuse, connectors (Interior—Instrument wire harness and warning light panel) and related wires for an open circuit. Check the bulb, and replace it if burned out.
2. Start the engine and let it idle. The charge warning light should go off. If it stays on all the time, or stays on at idle and goes off with an increase in engine speed, check the alternator neutral wire circuit, alternator output, and voltage regulator.

Alternator Output Test

1. With engine off, disconnect the alternator terminal (W).
2. Hook up an ammeter as shown.



3. Start the engine.
4. Turn on:
   - Headlight switch (high beam).
   - Rear window defroster switch.
   - Heater fan switch (HI).
5. Check alternator output.
   If within the output curve shown, the alternator is good.
   If the alternator has no output or its output is not within specification, see the alternator checks starting on page 27-9.

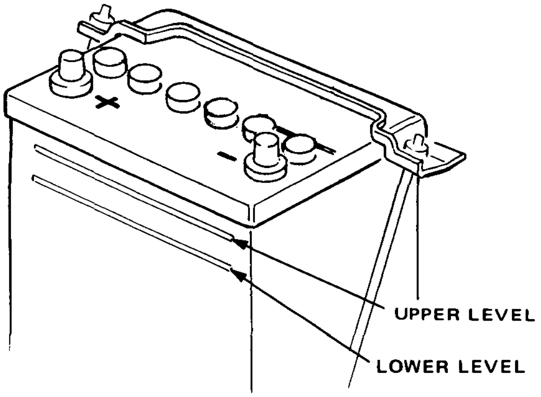


Battery Inspection and Charging

Inspection

1. Check battery case for loose parts, cracked case or top. Inspect cells for sulfation. Replace if damaged or sulfated.
2. Check electrolyte level in each cell. If low, add distilled water to bring level to UPPER mark.

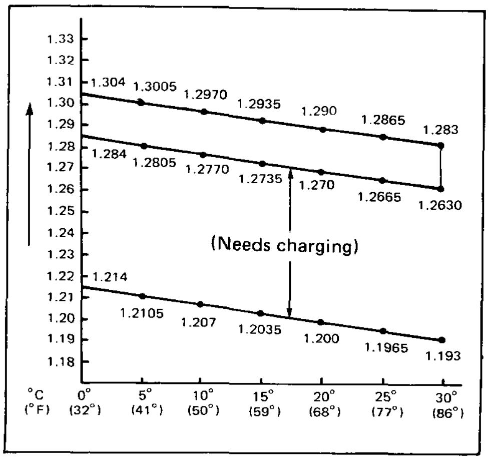
CAUTION: Battery electrolyte is a sulphuric acid solution. Do not allow it to contact painted surfaces, clothing or skin. If it does, rinse with water immediately to minimize the damage.
Do not overfill battery.



3. Check electrolyte specific gravity.

- *Use a hydrometer and the correct specific gravity range for your temperature.*
  - If the reading is at, or below, the "Needs charging" level, the battery must be charged.

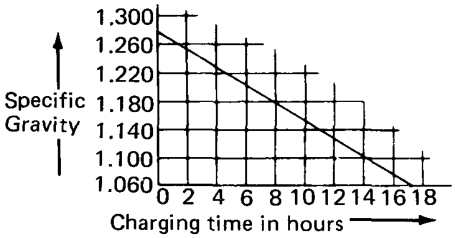
Variation of Specific Gravity with Temperature



Charging

4. Charge at 10% of the ampere-hour rating until battery specific gravity is at least 1.250.

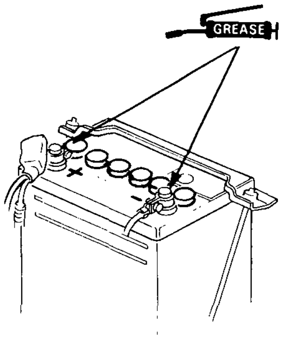
SLOW CHARGE PROCEDURE



WARNING **Keep sparks, flames and cigarettes away while charging battery.**

5. Keep battery and terminals clean. If necessary, brush with backing-soda solution and flush with clean, lukewarm water. Check for loose terminal clamps.
6. If clamps become corroded inside, clean out with a wire brush or coarse emery cloth.

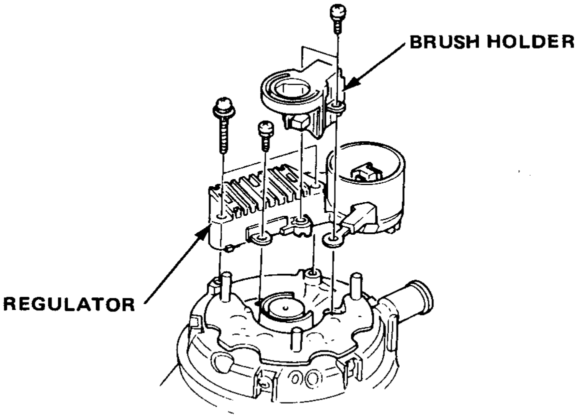
NOTE: Coat terminals lightly with petroleum jelly to retard corrosion. Baking soda may be mixed with the jelly for additional protection against acid build-up.



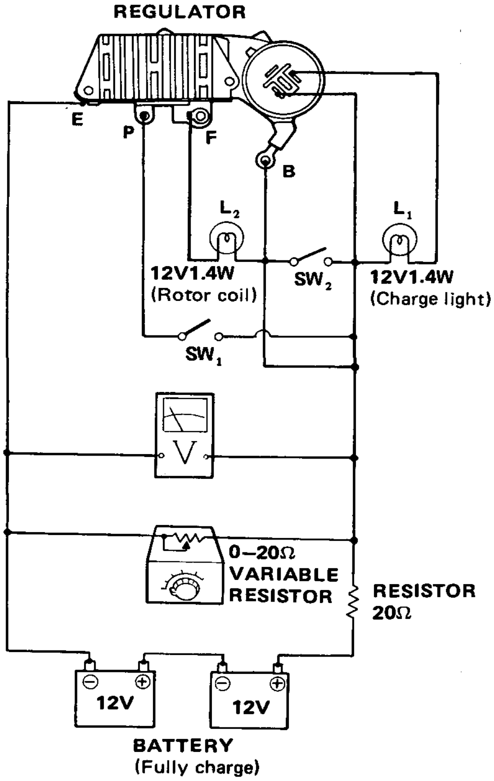
Charging

Voltage Regulator Test

1. Remove the rear end cover and the brush holder, then remove the regulator.


BRUSH HOLDER
REGULATOR

2. Hook up the regulator, batteries, voltmeter, lights, switches, and resistor as shown.


REGULATOR
E
P
F
B
L_2
L_1
12V1.4W
(Rotor coil)
SW_2
12V1.4W
(Charge light)
SW_1
V
0–20Ω
VARIABLE
RESISTOR
RESISTOR
20Ω
12V
12V
BATTERY
(Fully charge)

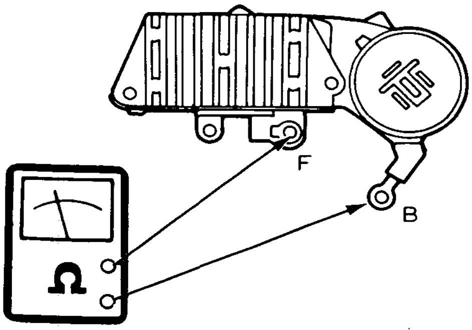
3. Turn the switches 1 and 2 OFF, and adjust the voltage to 12 V.
4. Turn the switch 1 ON, and switch 2 OFF.
5. Turn the switch 2 ON with the switch 1 ON.
6. With the switches 1 and 2 ON, gradually raise voltage to see that the lamp L_2 goes OFF at anywhere between 13.9 and 15.1 V.

The regulator is normal if it meets the following conditions in each test:

Test	Lamp L_1	Lamp L_2
4	ON	ON
5	OFF	ON
6	OFF	OFF

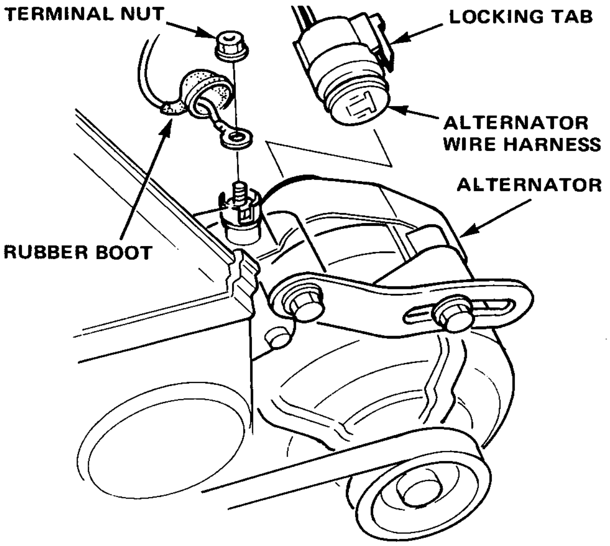
NOTE:
- Do not disturb the above sequence as the regulator will not function properlly if the correct sequence is not observed.
- Perform the above tests quickly.

7. Check the diode for continuity between the terminals B and F. There should be continuity only in one direction.

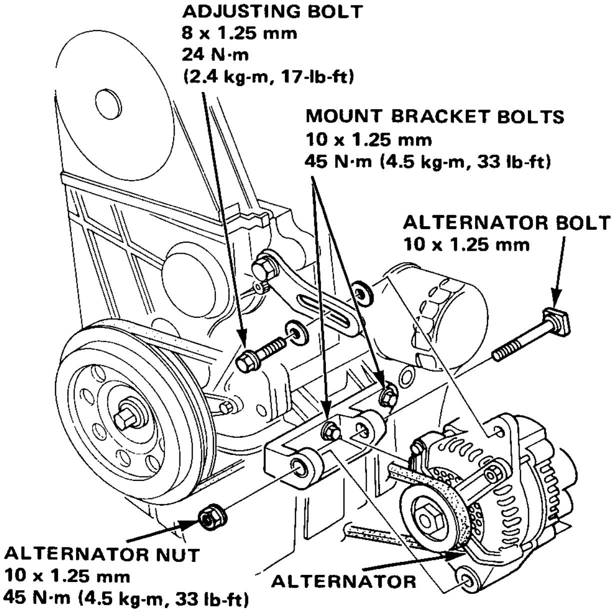


Alternator Replacement

1. Disconnect the ground cable from battery negative (–) post.
2. Disconnect the wires from the alternator as shown.


TERMINAL NUT
LOCKING TAB
ALTERNATOR WIRE HARNESS
ALTERNATOR
RUBBER BOOT

3. Remove the alternator belt adjusting bolt and remove the alternator nut.
4. Remove the alternator belt, and remove the alternator.


ADJUSTING BOLT
8 x 1.25 mm
24 N·m
(2.4 kg-m, 17-lb-ft)
MOUNT BRACKET BOLTS
10 x 1.25 mm
45 N·m (4.5 kg-m, 33 lb-ft)
ALTERNATOR BOLT
10 x 1.25 mm
ALTERNATOR NUT
10 x 1.25 mm
45 N·m (4.5 kg-m, 33 lb-ft)
ALTERNATOR

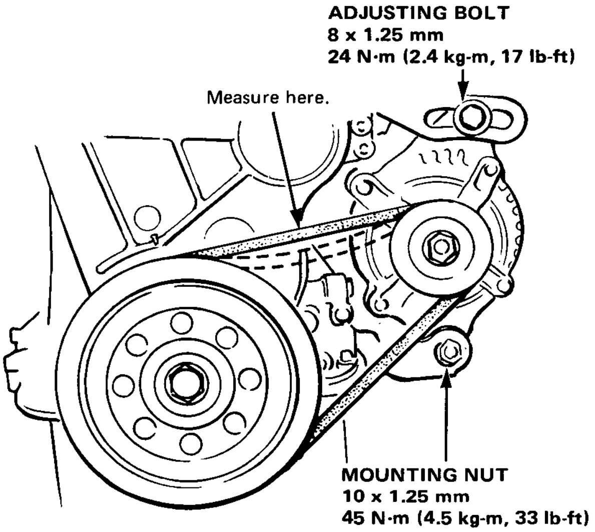
5. Install in reverse order of removal.
6. Adjust alternator belt tension after installing.

Alternator Belt Adjustment

1. Apply a force of 98N (10 kg, 22 lb) and measure the deflection between the alternator and the crankshaft pulley.

   Deflection: 7–10 mm (0.28–0.39 in.)

   NOTE: On a brand-new belt, the deflection should be 4–6.5 mm (0.16–0.20 in) when first measured.


ADJUSTING BOLT
8 x 1.25 mm
24 N·m (2.4 kg-m, 17 lb-ft)
Measure here.
MOUNTING NUT
10 x 1.25 mm
45 N·m (4.5 kg-m, 33 lb-ft)

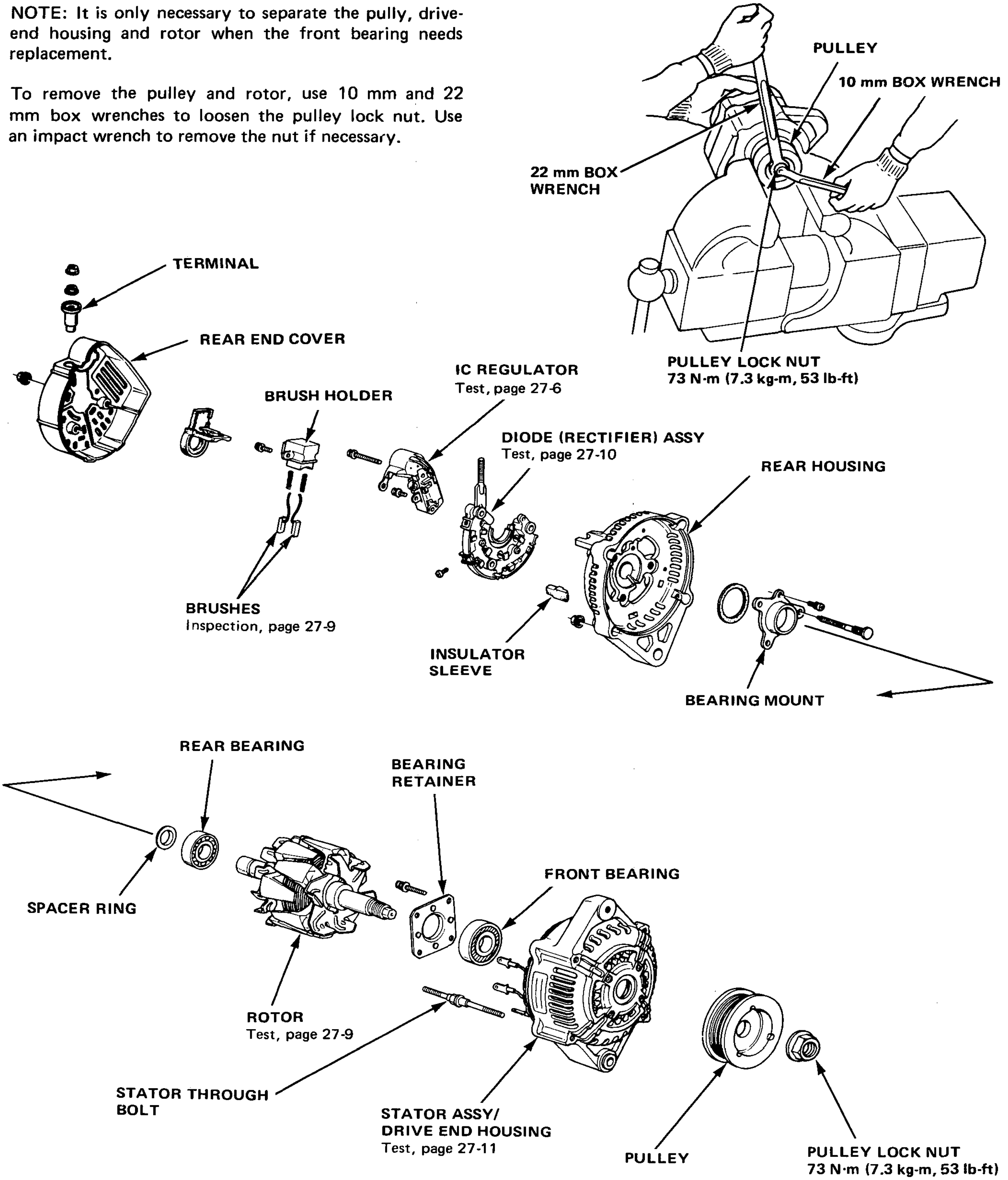
2. Loosen the alternator adjusting bolt and mounting bolt.
3. Move the alternator to obtain the proper belt tension and retighten the bolt.
4. Recheck the deflection of the belt.

Charging

Alternator Overhaul

NOTE: It is only necessary to separate the pully, drive-end housing and rotor when the front bearing needs replacement.

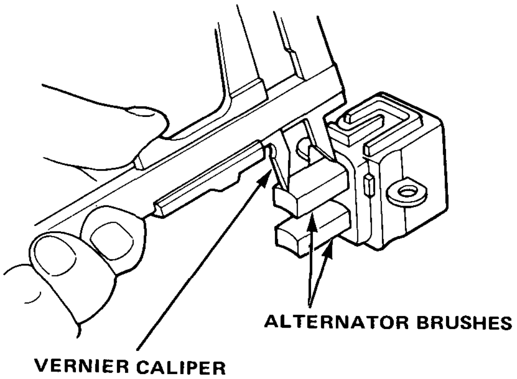
To remove the pulley and rotor, use 10 mm and 22 mm box wrenches to loosen the pulley lock nut. Use an impact wrench to remove the nut if necessary.


PULLEY
10 mm BOX WRENCH
22 mm BOX WRENCH
PULLEY LOCK NUT
73 N·m (7.3 kg-m, 53 lb-ft)
TERMINAL
REAR END COVER
IC REGULATOR
Test, page 27-6
BRUSH HOLDER
DIODE (RECTIFIER) ASSY
Test, page 27-10
REAR HOUSING
BRUSHES
Inspection, page 27-9
INSULATOR SLEEVE
BEARING MOUNT
REAR BEARING
BEARING RETAINER
FRONT BEARING
SPACER RING
ROTOR
Test, page 27-9
STATOR THROUGH BOLT
STATOR ASSY/ DRIVE END HOUSING
Test, page 27-11
PULLEY
PULLEY LOCK NUT
73 N·m (7.3 kg-m, 53 lb-ft)

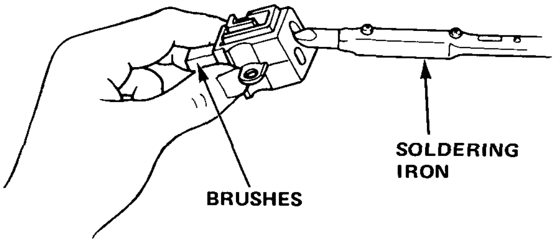
Alternator Brush Inspection

1. Remove the rear end cover, then take out the brush holder by removing its 2 screws.
2. Measure length of the brushes with a vernier caliper.

Alternator Brush Length:
Standard: 10.5 mm (0.41 in.)
Service Limit: 4.5 mm (0.18 in.)


ALTERNATOR BRUSHES
VERNIER CALIPER

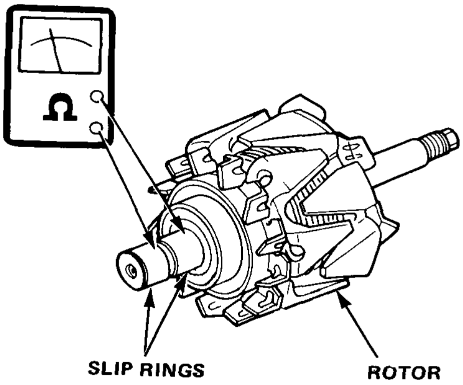
3. If brushes are not within service limit, replace them.


SOLDERING IRON
BRUSHES

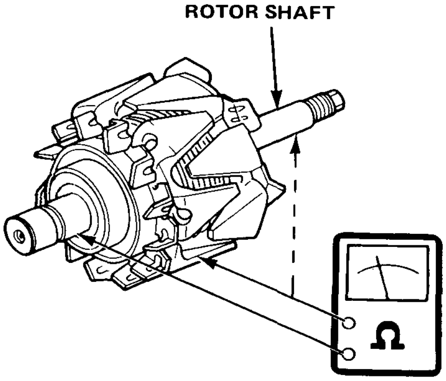
NOTE: When replacing the brushes, use only rosin core type solder or solder joints will corrode.

Rotor Slip Ring Test

1. Check that there is continuity between the slip rings.


SLIP RINGS
ROTOR

2. Check that there is no continuity between the rings and the rotor or rotor shaft.


ROTOR SHAFT

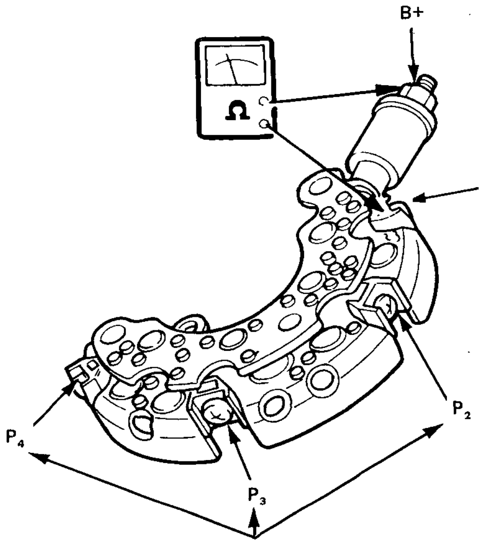
3. If the rotor fails either continuity check, replace it.

Rectifier Test

NOTE: Diodes are designed to pass current in one direction and block current in the opposite direction. Since the alternator rectifier is made up of eight diodes (4 pairs), each diode must be tested for continuity in both directions – a total of 16 checks.

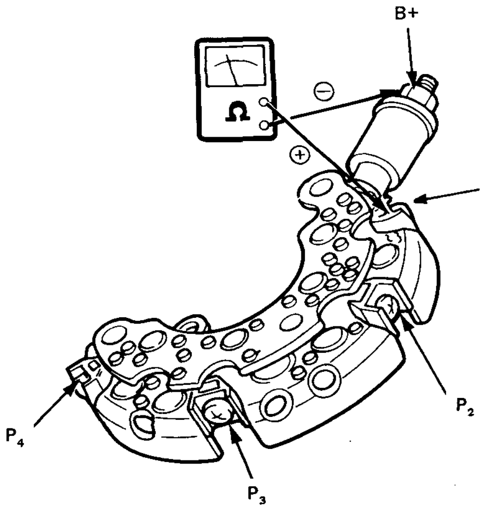
1. Using an ohmmeter or continuity tester (test light), check one diode from each pair, in both directions:

   - Connect POSITIVE test probe to B+ terminal and NEGATIVE test probe to P terminal of each diode pair. Note readings.



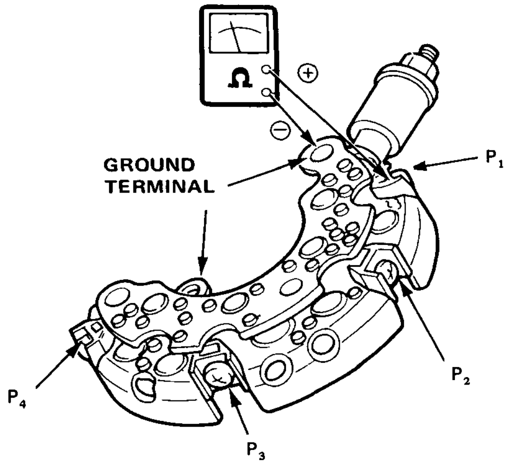
Make all checks at P terminals.

   - Reverse probe position and check diodes at P terminals again.

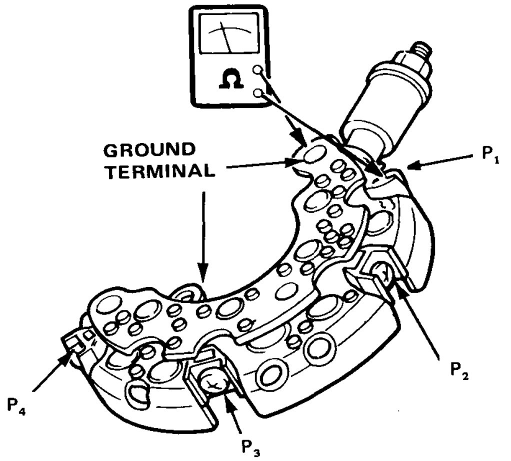


2. Check the other diode from each pair, in both directions:

   - Connect NEGATIVE test probe to ground terminal and POSITIVE probe to P terminal of each diode pair.



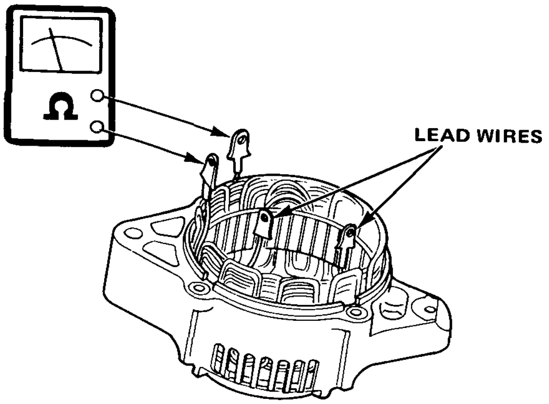
   - Reverse probe positions and check diodes at P terminals again.



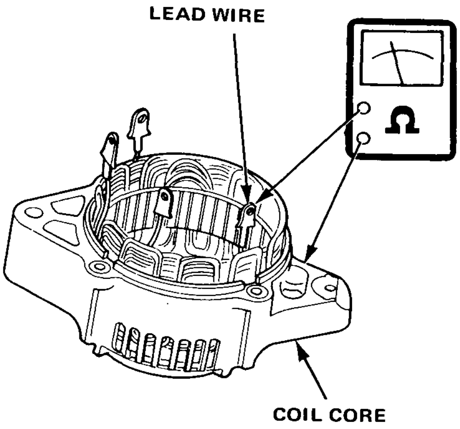
3. If any of the 16 checks shows continuity in both directions, or no continuity in both directions, the diode is defective and the rectifier assembly must be replaced. (Diodes are not available separately.)

Stator Test

1. Check that there is continuity between each pair of lead wires.


Ω
LEAD WIRES

2. Check that there is no continuity between each lead wire and the coil core.

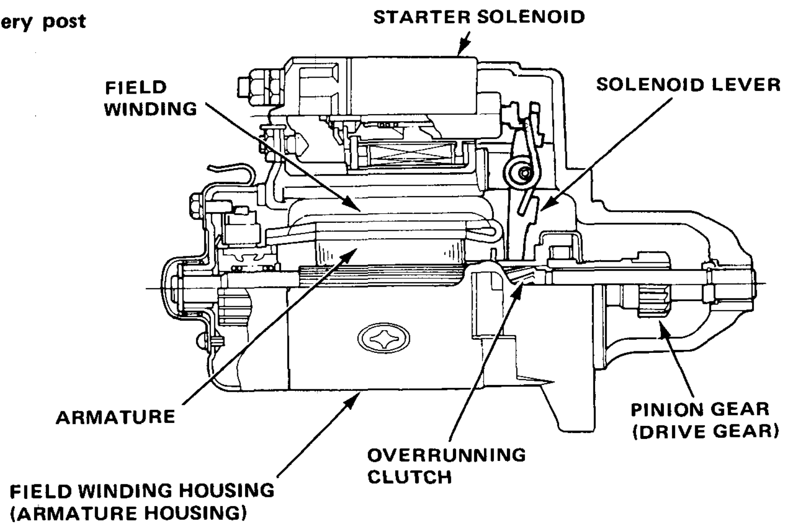

LEAD WIRE
Ω
COIL CORE

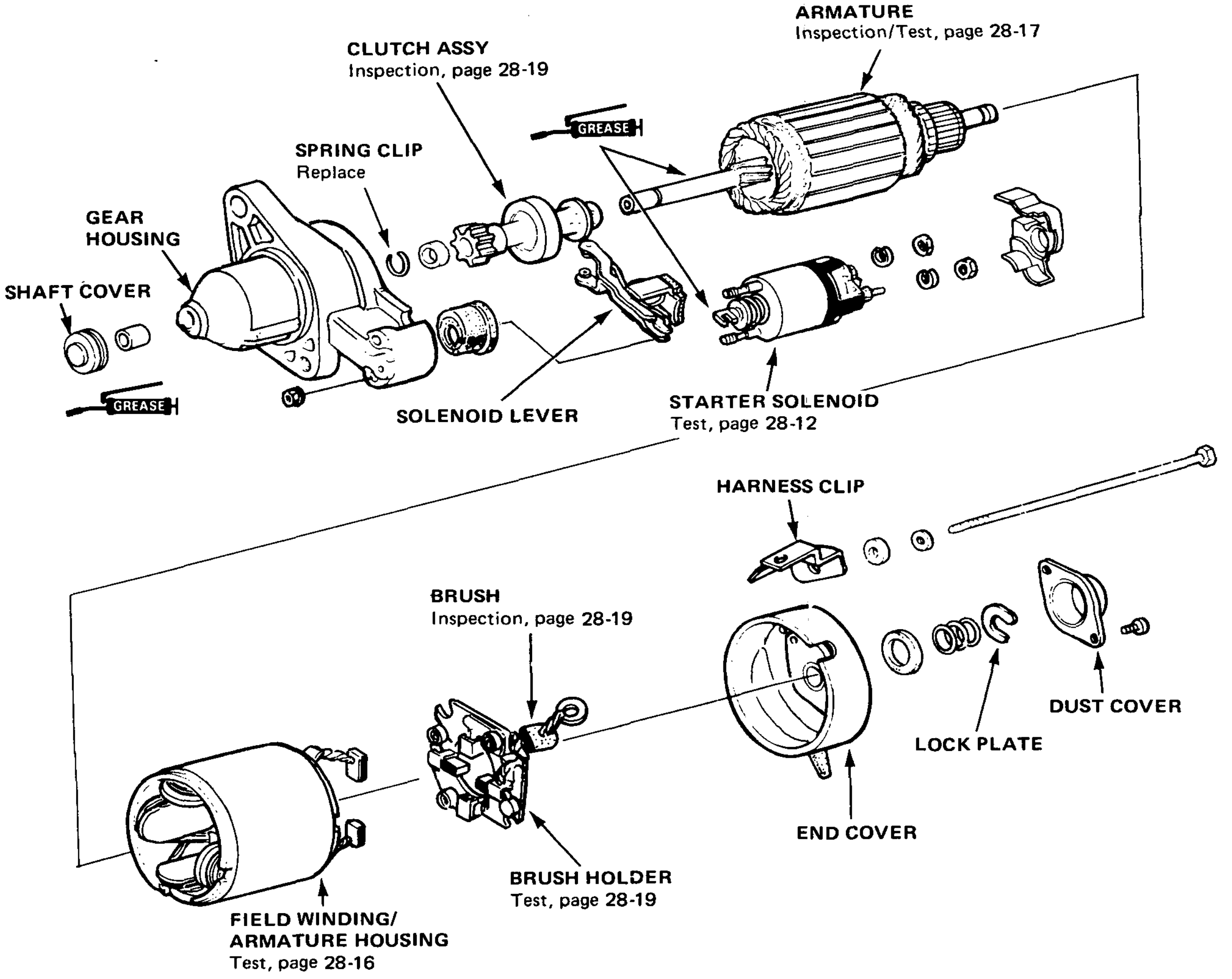
3. If the coil fails either continuity check, replace the stator.

Starting

Illustrated Index (Direct drive 0.8 kw ND)

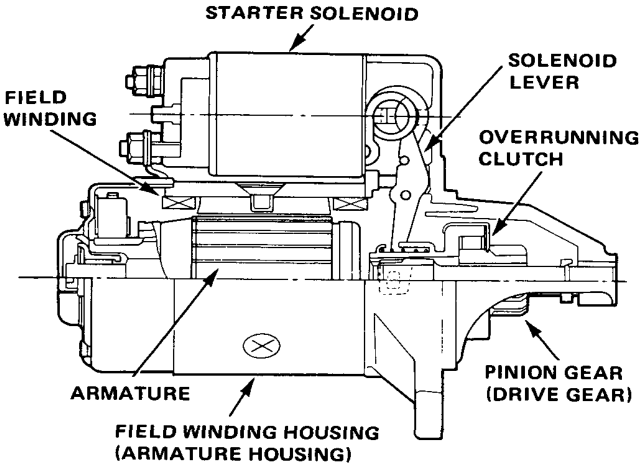
CAUTION: Disconnect ground cable from battery post before removing starter.

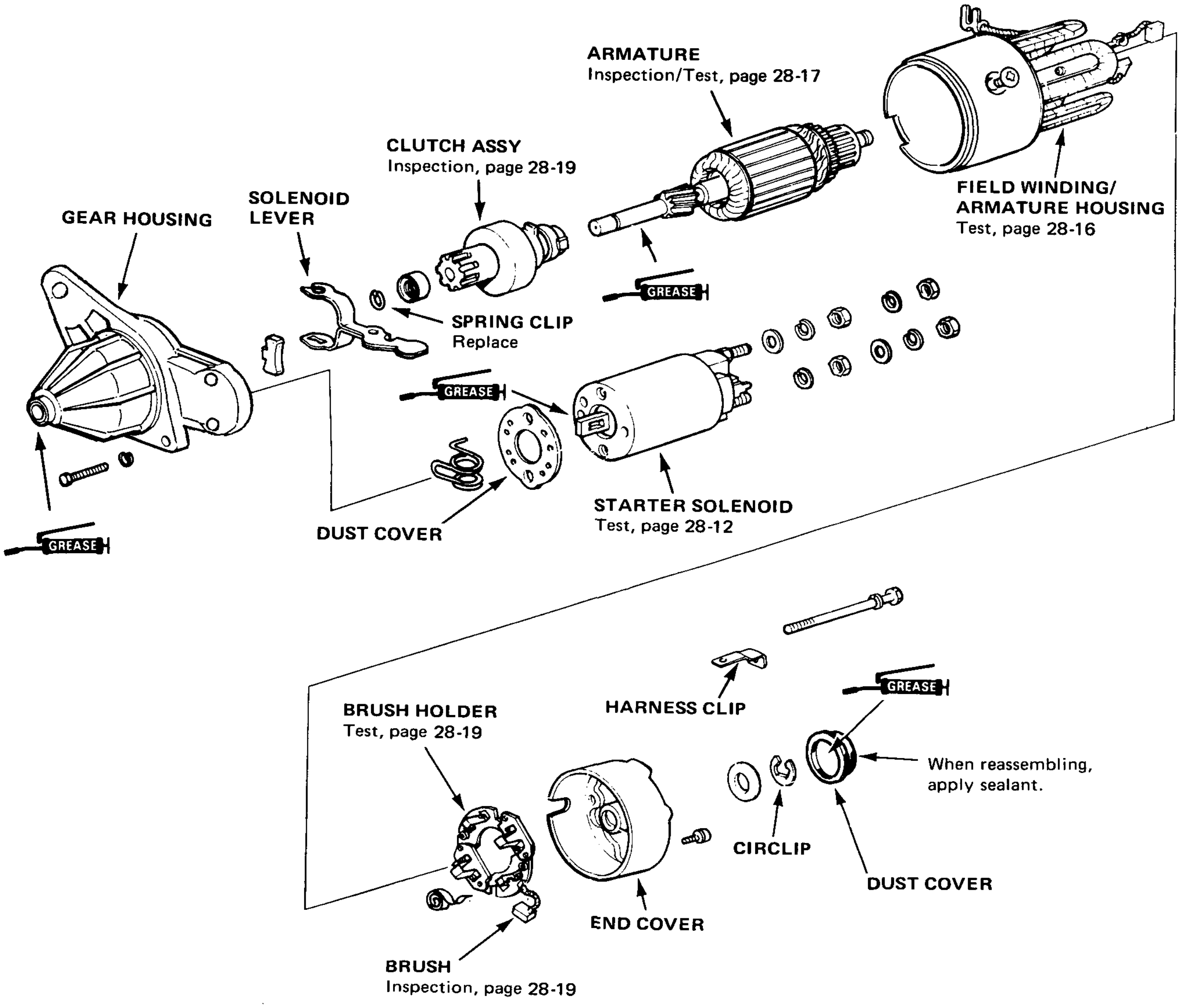

STARTER SOLENOID
FIELD WINDING
SOLENOID LEVER
ARMATURE
PINION GEAR (DRIVE GEAR)
OVERRUNNING CLUTCH
FIELD WINDING HOUSING (ARMATURE HOUSING)


ARMATURE
Inspection/Test, page 28-17
CLUTCH ASSY
Inspection, page 28-19
GREASE
SPRING CLIP
Replace
GEAR HOUSING
SHAFT COVER
GREASE
SOLENOID LEVER
STARTER SOLENOID
Test, page 28-12
HARNESS CLIP
BRUSH
Inspection, page 28-19
DUST COVER
LOCK PLATE
END COVER
BRUSH HOLDER
Test, page 28-19
FIELD WINDING/
ARMATURE HOUSING
Test, page 28-16

(Direct drive 0.8 kw HITACHI)

CAUTION: Disconnect ground cable from battery post before removing starter.

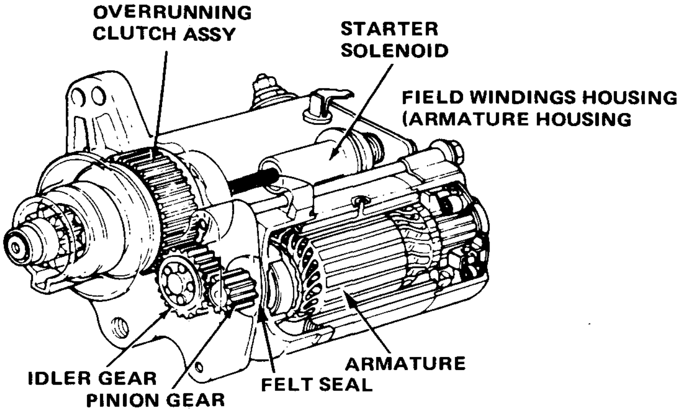

STARTER SOLENOID
SOLENOID LEVER
FIELD WINDING
OVERRUNNING CLUTCH
PINION GEAR (DRIVE GEAR)
ARMATURE
FIELD WINDING HOUSING (ARMATURE HOUSING)

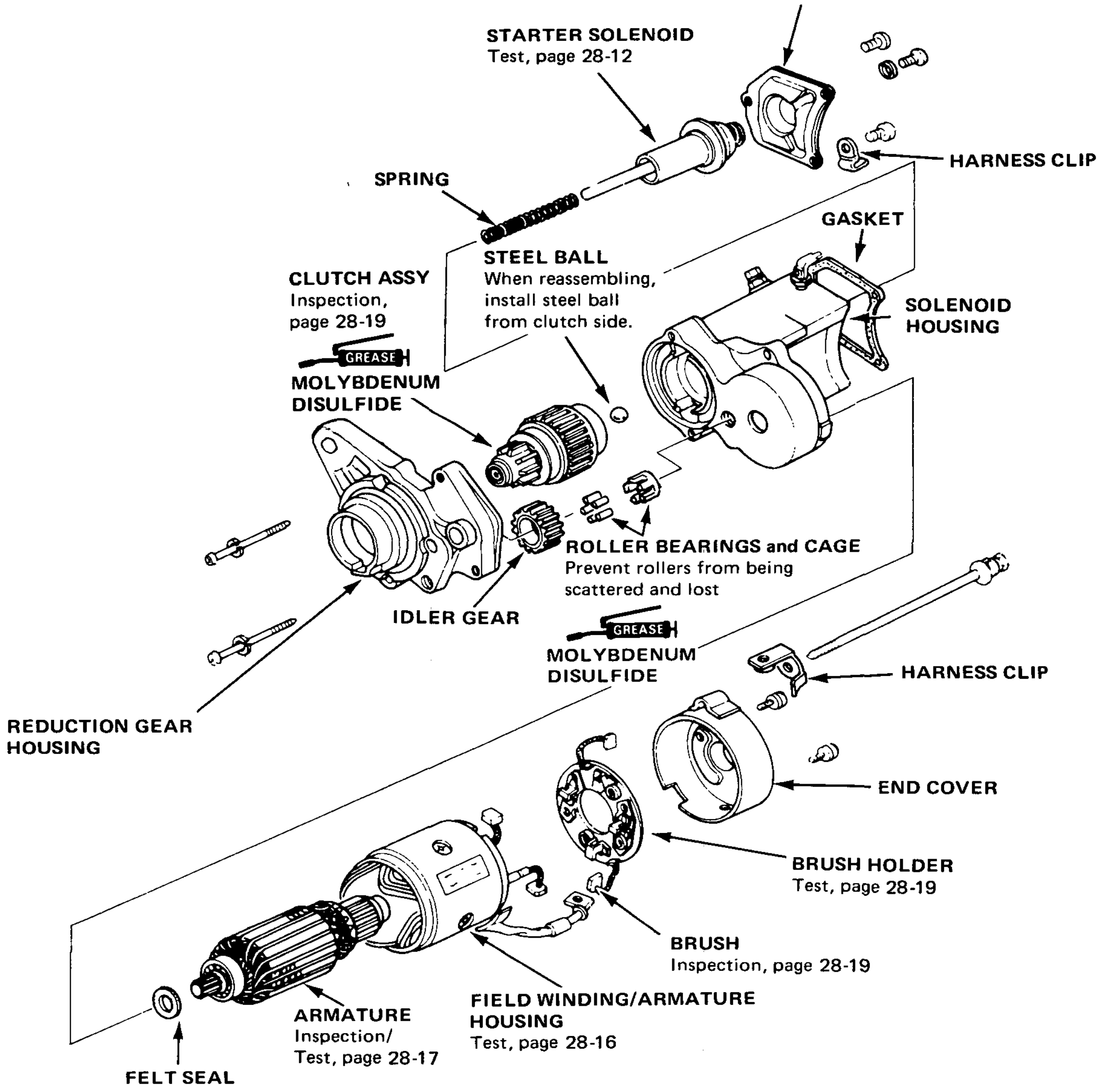

ARMATURE
Inspection/Test, page 28-17
CLUTCH ASSY
Inspection, page 28-19
FIELD WINDING/ ARMATURE HOUSING
Test, page 28-16
SOLENOID LEVER
GEAR HOUSING
GREASE
SPRING CLIP
Replace
GREASE
GREASE
STARTER SOLENOID
Test, page 28-12
DUST COVER
GREASE
BRUSH HOLDER
Test, page 28-19
HARNESS CLIP
GREASE
When reassembling, apply sealant.
CIRCLIP
DUST COVER
END COVER
BRUSH
Inspection, page 28-19

Starting

Illustrated Index (Gear reduction 1.0 kw ND)

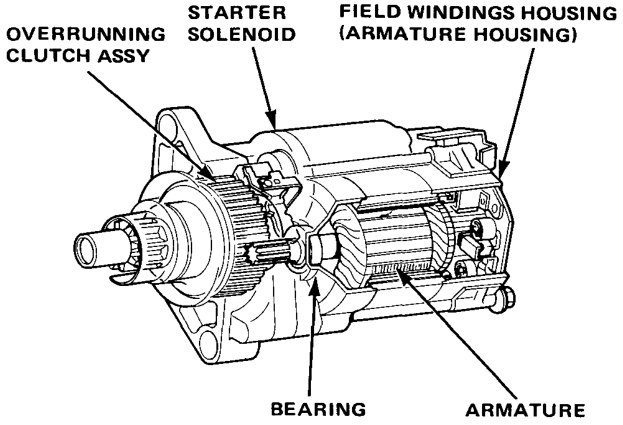
CAUTION: Disconnect ground cable from battery post before removing starter.

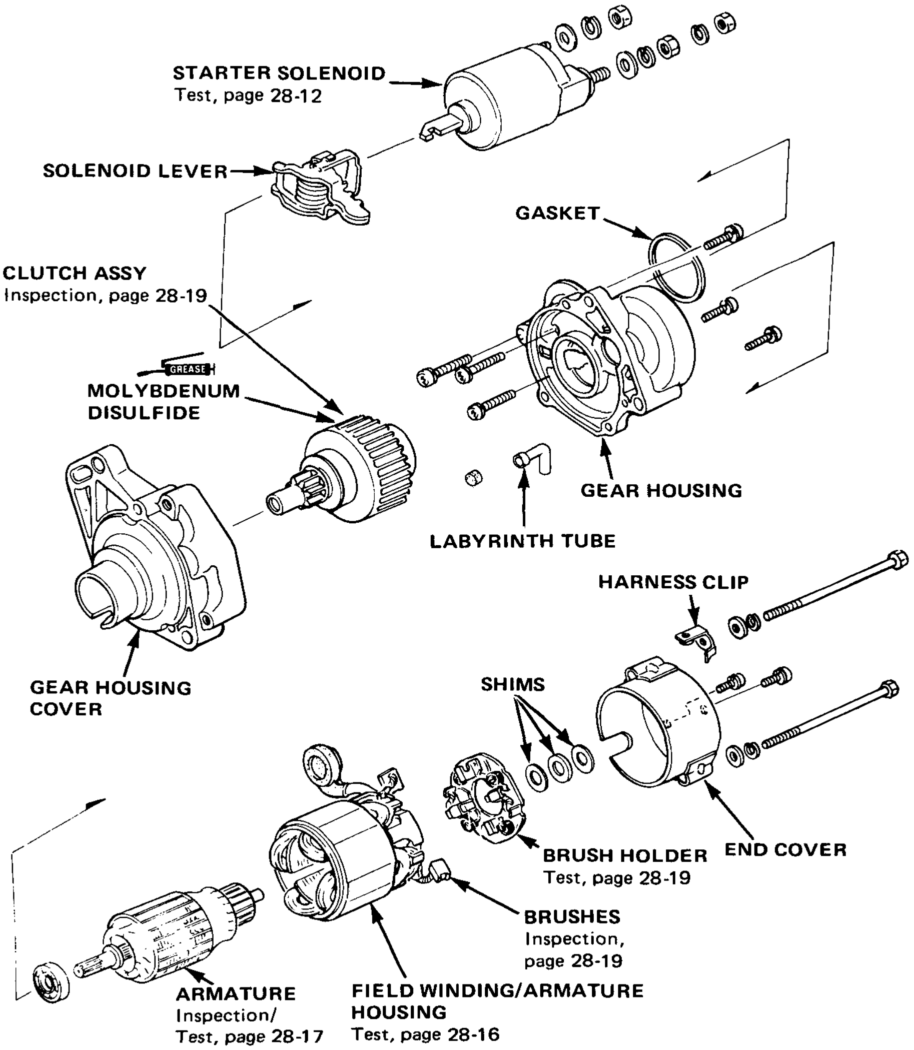

OVERRUNNING CLUTCH ASSY
STARTER SOLENOID
FIELD WINDINGS HOUSING (ARMATURE HOUSING
IDLER GEAR
PINION GEAR
FELT SEAL
ARMATURE


COVER
STARTER SOLENOID
Test, page 28-12
HARNESS CLIP
SPRING
GASKET
STEEL BALL
When reassembling, install steel ball from clutch side.
CLUTCH ASSY
Inspection, page 28-19
GREASE
MOLYBDENUM DISULFIDE
SOLENOID HOUSING
ROLLER BEARINGS and CAGE
Prevent rollers from being scattered and lost
IDLER GEAR
GREASE
MOLYBDENUM DISULFIDE
HARNESS CLIP
REDUCTION GEAR HOUSING
END COVER
BRUSH HOLDER
Test, page 28-19
BRUSH
Inspection, page 28-19
FIELD WINDING/ARMATURE HOUSING
Test, page 28-16
ARMATURE
Inspection/
Test, page 28-17
FELT SEAL

(Gear reduction 1.0 kw MITSUBA)

CAUTION: Disconnect ground cable from battery post before removing starter.

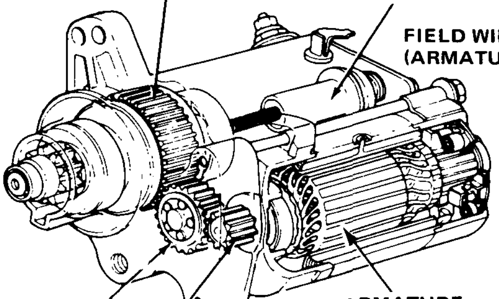

OVERRUNNING CLUTCH ASSY
STARTER SOLENOID
FIELD WINDINGS HOUSING (ARMATURE HOUSING)
BEARING
ARMATURE

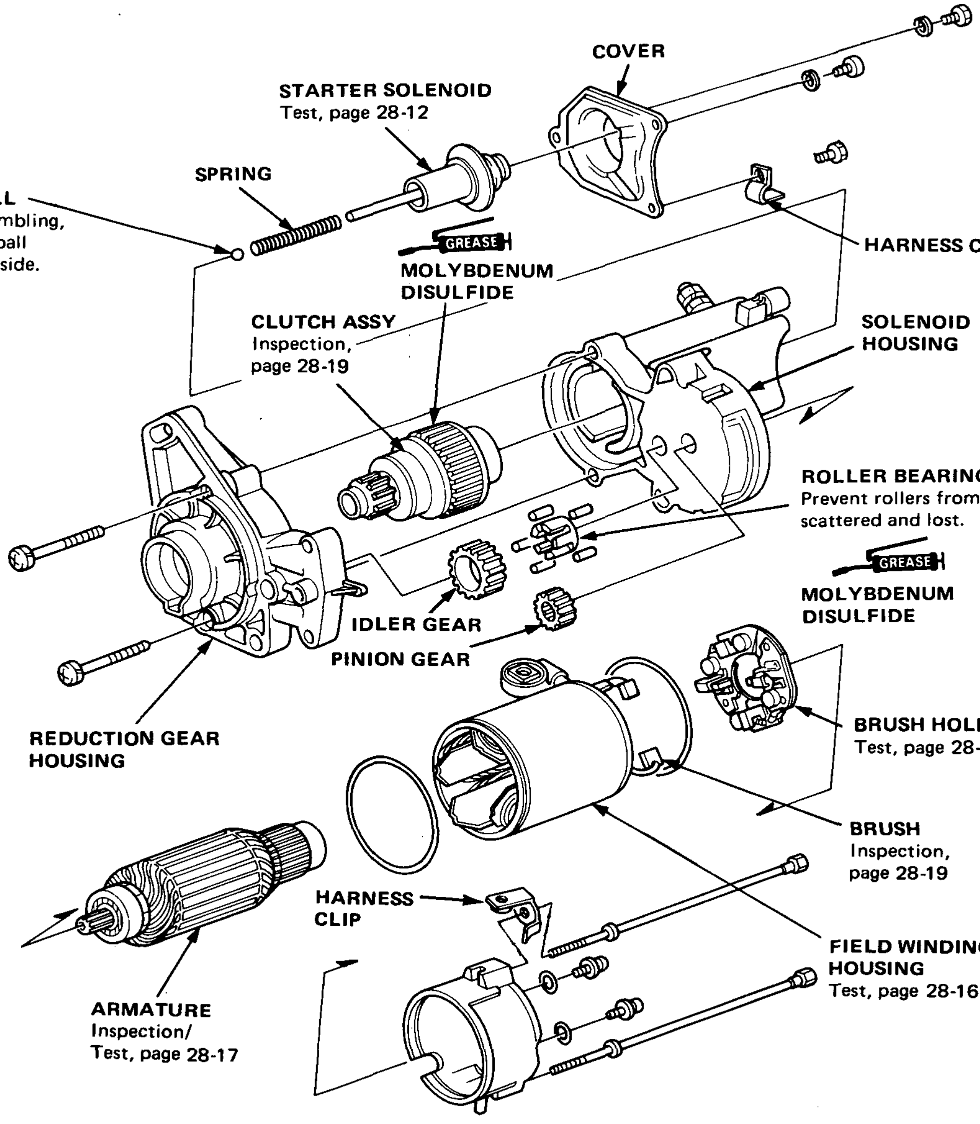

STARTER SOLENOID
Test, page 28-12
SOLENOID LEVER
GASKET
CLUTCH ASSY
Inspection, page 28-19
GREASE
MOLYBDENUM DISULFIDE
GEAR HOUSING
LABYRINTH TUBE
GEAR HOUSING COVER
HARNESS CLIP
SHIMS
BRUSH HOLDER
Test, page 28-19
END COVER
BRUSHES
Inspection, page 28-19
ARMATURE
Inspection/ Test, page 28-17
FIELD WINDING/ARMATURE HOUSING
Test, page 28-16

Starting

Illustrated Index (Gear reduction 1.4 kw ND)

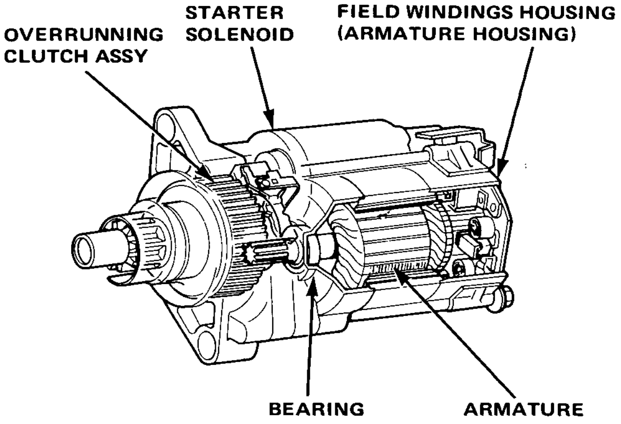
CAUTION: Disconnect ground cable from battery post before removing starter.

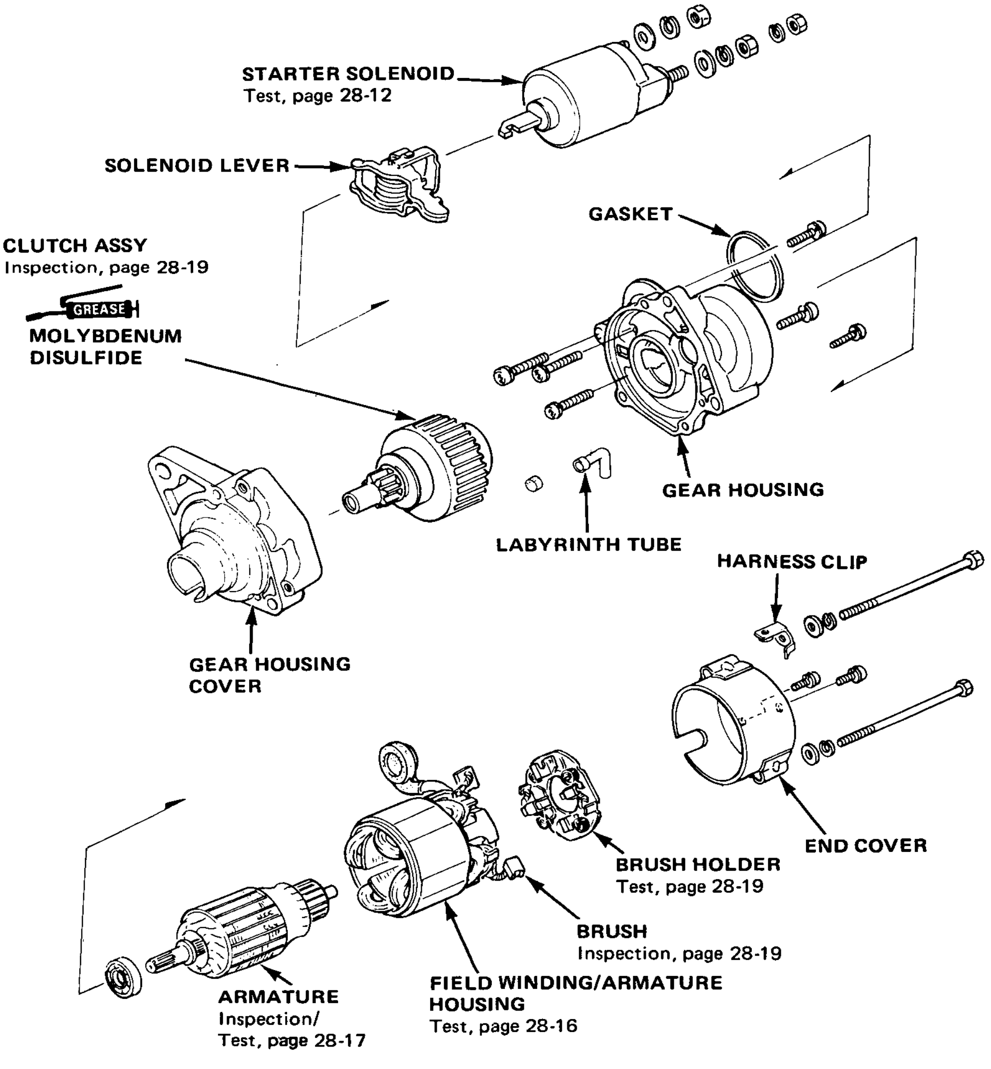

OVERRUNNING CLUTCH ASSY
STARTER SOLENOID
FIELD WINDINGS HOUSING (ARMATURE HOUSING)
IDLER GEAR
PINION GEAR
ARMATURE


COVER
STARTER SOLENOID
Test, page 28-12
SPRING
STEEL BALL
When reassembling, install steel ball from clutch side.
HARNESS CLIP
GREASE
MOLYBDENUM DISULFIDE
CLUTCH ASSY
Inspection, page 28-19
SOLENOID HOUSING
ROLLER BEARINGS and CAGE
Prevent rollers from being scattered and lost.
GREASE
MOLYBDENUM DISULFIDE
IDLER GEAR
PINION GEAR
REDUCTION GEAR HOUSING
BRUSH HOLDER
Test, page 28-19
BRUSH
Inspection, page 28-19
HARNESS CLIP
FIELD WINDING/ARMATURE HOUSING
Test, page 28-16
ARMATURE
Inspection/
Test, page 28-17

(Gear reduction 1.4 kw MITSUBA)

CAUTION: Disconnect ground cable from battery post before removing starter.


OVERRUNNING CLUTCH ASSY
STARTER SOLENOID
FIELD WINDINGS HOUSING (ARMATURE HOUSING)
BEARING
ARMATURE


STARTER SOLENOID
Test, page 28-12
SOLENOID LEVER
GASKET
CLUTCH ASSY
Inspection, page 28-19
GREASE
MOLYBDENUM DISULFIDE
GEAR HOUSING
LABYRINTH TUBE
HARNESS CLIP
GEAR HOUSING COVER
END COVER
BRUSH HOLDER
Test, page 28-19
BRUSH
Inspection, page 28-19
FIELD WINDING/ARMATURE HOUSING
Test, page 28-16
ARMATURE
Inspection/
Test, page 28-17

Starting

Troubleshooting Precations

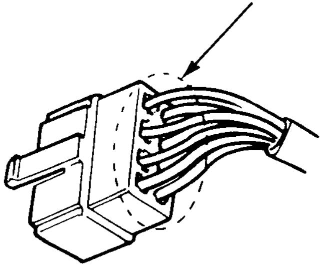
Before Troubleshooting:

1. Check main fuse and fuse box for blown fuses.
2. Make sure battery posts and terminals are clean and tight.
3. Check battery for damage.
4. Check battery state of charge.
5. Check alternator belt for proper tension.
6. Check that connectors in the defective circuit are clean, properly connected, and that a pin or receptacle is not loose in a connector housing.

CAUTION:

- **Do not quick-charge a battery unless the battery ground strap has been disconnected, or you will damage the alternator diodes.**
- **Do not attempt to crank the engine with the ground strap disconnected or you will severely damage the wiring.**

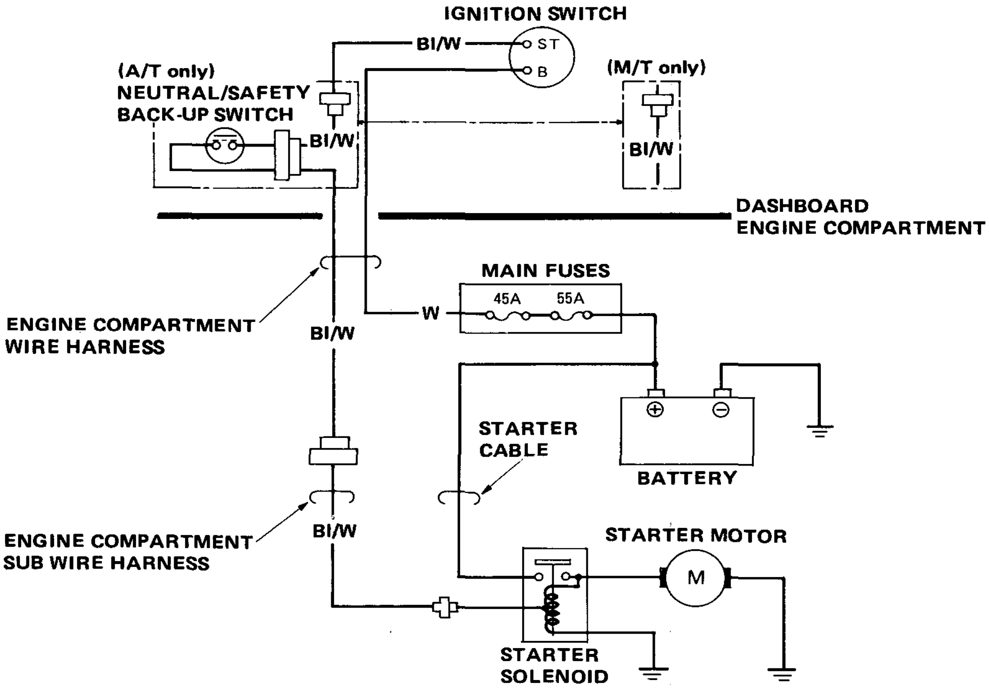
- **Do not pull on wires when disconnecting connectors.**
- **When connecting a connector, push it until it clicks into place.**
- **Check to make sure that multi-pin connectors are packed with grease.**



Pack with silicone grease.

- **When connecting battery terminals make sure they are clean and tightened securely.**

Wiring Diagram


IGNITION SWITCH
Bl/W
ST
B
(A/T only)
NEUTRAL/SAFETY BACK-UP SWITCH
Bl/W
(M/T only)
Bl/W
DASHBOARD
ENGINE COMPARTMENT
MAIN FUSES
45A
55A
W
ENGINE COMPARTMENT WIRE HARNESS
Bl/W
STARTER CABLE
BATTERY
ENGINE COMPARTMENT SUB WIRE HARNESS
Bl/W
STARTER MOTOR
M
STARTER SOLENOID

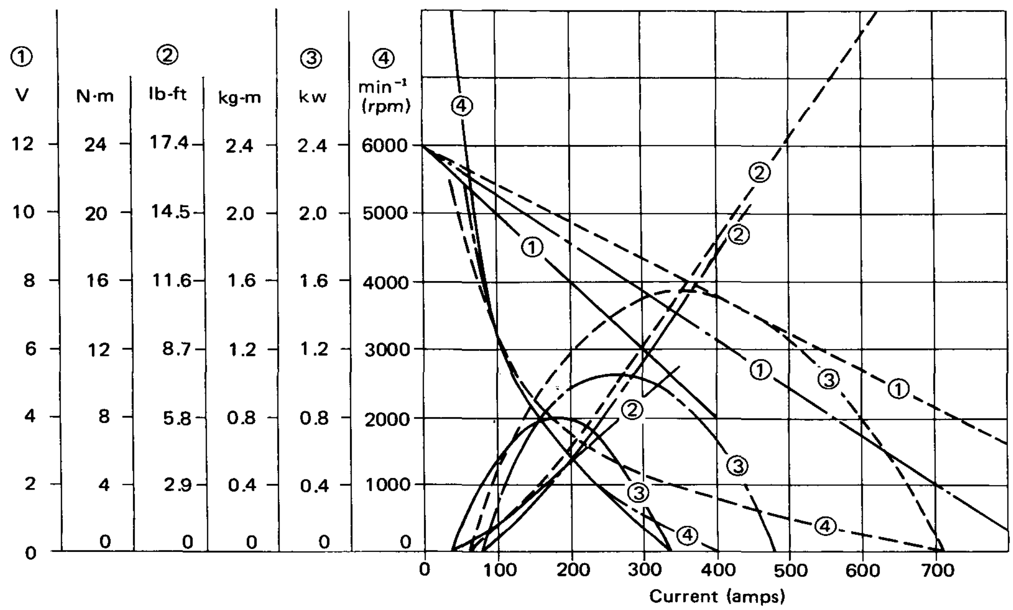
Specifications

	Direct drive 0.8 kw		Gear reduction 1.0 kw		Gear redution 1.4 kw	
	ND	HITACHI	ND	MITSUBA	ND	MITSUBA
Type	DFKEE	S114-396	DRDFE	SM302-07	DRKIE	SM302-04
Normal output	0.8 kw		1.0 kw		1.4 kw	
Nominal voltage	12 V					
Hour rating	30 seconds					
Direction of rotation	Clockwise as viewed from pinion gear side					
Weight	4.4 kg (9.7 lb)		3.85 kg (8.5 lb)	3.4 kg (7.5 lb)	4.6 kg (10.1 lb)	3.7 kg (8.2 lb)

			Direct drive 0.8 kw	Gear reduction 1.0 kw	Gear reduction 1.4 kw
No load	Terminal voltage	V	11	11.5	
	Current	A	50 max.	90 max.	
	Draw speed	min^{-1} (rpm)	5000 min.	3000 min.	3500 min.
Load	Terminal voltage	V	8		8.5
	Current	A	200	230 max.	350 max.
	Torque	N·m (kg-m, lb-ft)	4.6 (0.46, 3.3) min.	6.5 (0.65, 4.7)	13.5 (1.35, 9.8)
	Draw speed	min^{-1} (rpm)	1,200 min.	1,180 min.	1,000 min.
Braked	Terminal voltage	V	5 at 20°C (68°F)	3.5 at 20°C (68°F)	2.4 at 20°C (68°F)
	Current draw	A	380 max.	460 max.	450 max.
	Torque	N·m (kg-m, lb-ft)	7.8 (0.78, 5.6) min.	11 (1.1, 8) min.	

Starter Performance Curves

① Voltage ② Torque ③ Output ④ Starter Speed min^{-1} (rpm)



Starting

Troubleshooting

NOTE: The air temperature must be between 15 and 38°C (59 and 100°F) before testing.

Recommended Procedure:

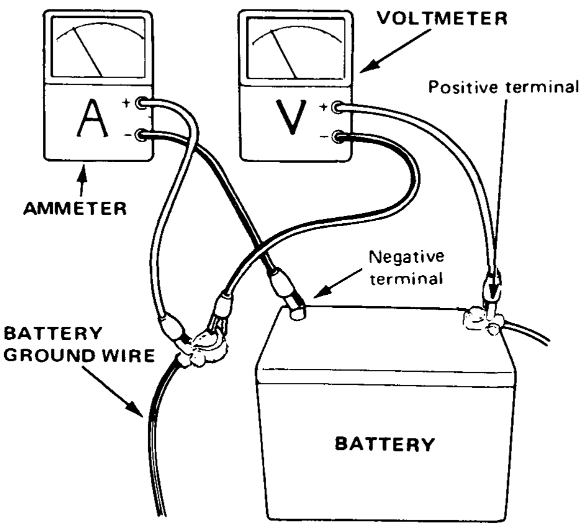
Use a starter system tester.
Connect and operate the equipment in accordance with manufacturer's instructions.
Test and troubleshoot as described starting with step 2.

Alternate Procedure:

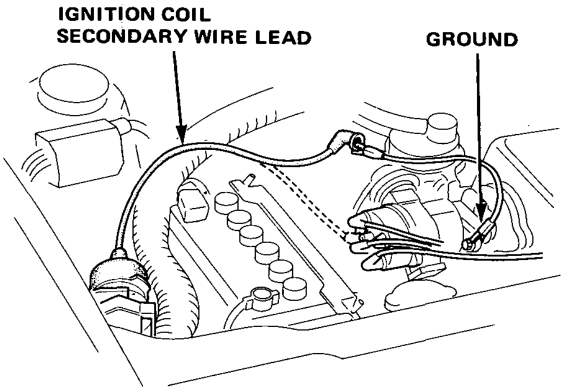
Use the following equipment:

- Ammeter, 0—400A
- Voltmeter, 0—20 volts (accurate within 0.1 volt)
- Tachometer 0—1200 min^{-1} (rpm)

1. Hook up voltmeter and ammeter as shown.



2. Disconnect ignition coil secondary wire from distributor, and ground it.



3. Check starter engagement.
Turn ignition switch to III. Starter should crank engine.

- If starter does not crank engine, bypass ignition switch circuit as follows: unplug connector (black/white wire) from starter. Connect jumper wire from battery positive (+) terminal to solenoid terminal. Starter should crank engine.
  - — If starter still does not crank engine, check battery, battery positive cable and ground, and cable connections for looseness or corrosion.
    If starter still does not crank the engine, remove starter and diagnose internal problems (pages 28-12 through 28-21).
  - — If starter cranks engine, check for open wire in the black/white wire circuit between the starter and ignition switch, and connectors. Check ignition switch. On Automatic, check NEUTRAL/BACK-UP switch and connectors.

4. Check for wear or damage.
Starter should crank engine smoothly and steadily.

   - If starter engages, but cranks engine erratically, remove starter motor. Inspect starter, drive gear and flywheel ring gear for damage. Check drive gear overrunning clutch for binding or slipping when armature is rotated with drive gear held. Replace gears if damaged. See pages 28-2 to 7.

5. Check cranking voltage and current draw.

   Voltage should be no less than specified volts as below.

   0.8 kw and 1.4 kw: 8 volts
   1.0 kw: 8.5 volts.

   Current should be no greater than specified amperes as below.

   0.8 kw: 200 amperes
   1.0 kw: 230 amperes
   1.4 kw: 350 amperes

   If voltage is too low, or current draw too high, check for:

   - Battery fully charged (page 27-5).
   - Open circuit in starter armature commutator segments (page 28-18).
   - Starter armature dragging.
   - Shorted armature winding (see page 28-16).
   - Excessive drag in engine.

6. Check cranking rpm.

   Engine speed during cranking should be approximately 400 min^{-1} (rpm).

   If cranking rpm is too low, check for:

   - Loose battery or starter terminals.
   - Excessively worn starter brushes (see page 28-19).
   - Open circuit in commutator segments (see page 28-18).
   - Dirty or damaged helical spline on drive gear.
   - Defective drive gear overrunning clutch (see page 28-19).

7. Check starter disengagement:

   Turn ignition switch to III and release to II.

   Starter drive gear should disengage from flywheel.

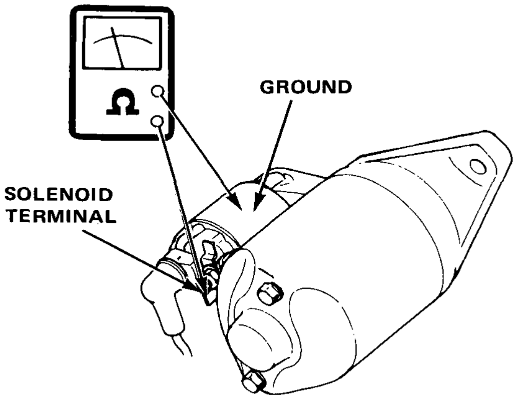
   If drive gear hangs up on flywheel, check:

   - Starter solenoid plunger and switch for malfunction.
   - Drive gear assembly for dirty or damaged overrunning clutch (see page 28-19).

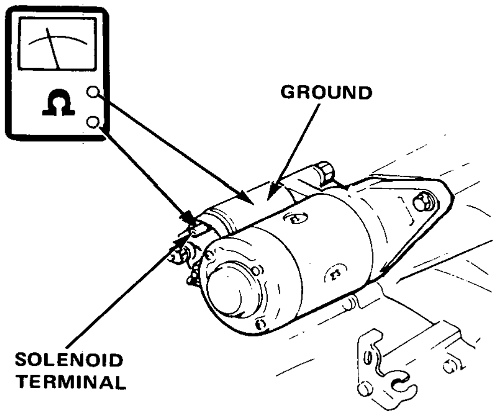
Starter Solenoid Test

1. Check pull-in coil continuity between the solenoid terminal and any convenient ground. Coil is OK if there is continuity.

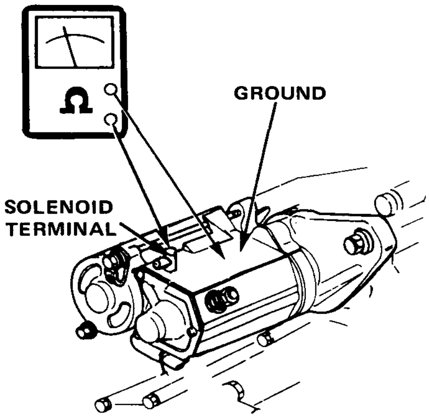
NIPPONDENSO 0.8 kw:


GROUND
SOLENOID TERMINAL
Ω

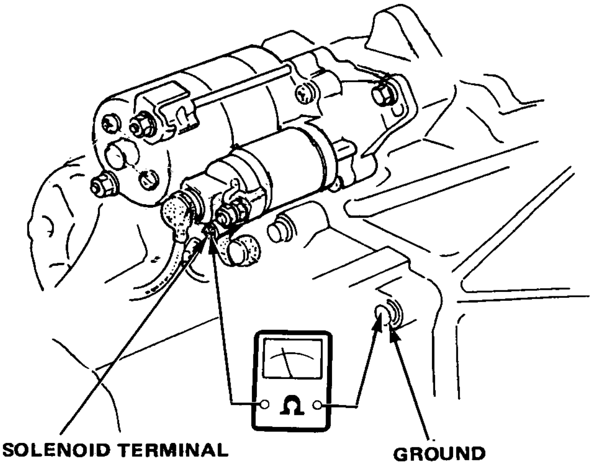
HITACHI 0.8 kw:


GROUND
SOLENOID TERMINAL
Ω

NIPPONDENSO 1.0 kw and 1.4 kw:

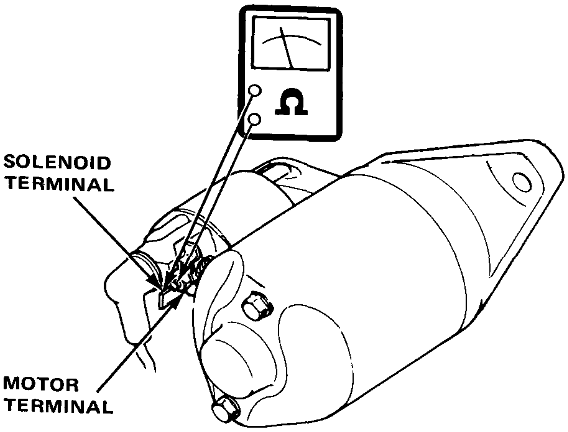

GROUND
SOLENOID TERMINAL
Ω

MITSUBA 1.0 kw and 1.4 kw:

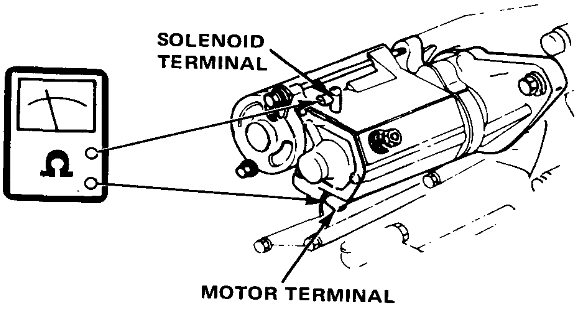

SOLENOID TERMINAL
GROUND
Ω

2. Check hold-in coil continuity between the solenoid terminal and the motor terminal on the solenoid. Coil is OK if there is continuity.

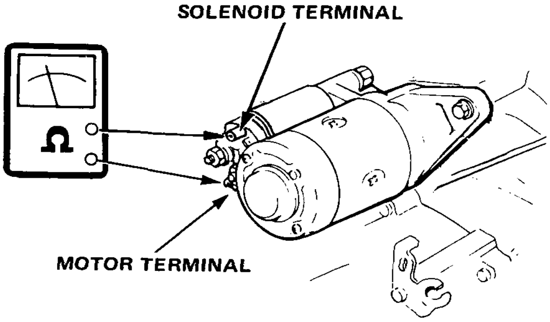
NIPPONDENSO 0.8 kw:


SOLENOID TERMINAL
MOTOR TERMINAL

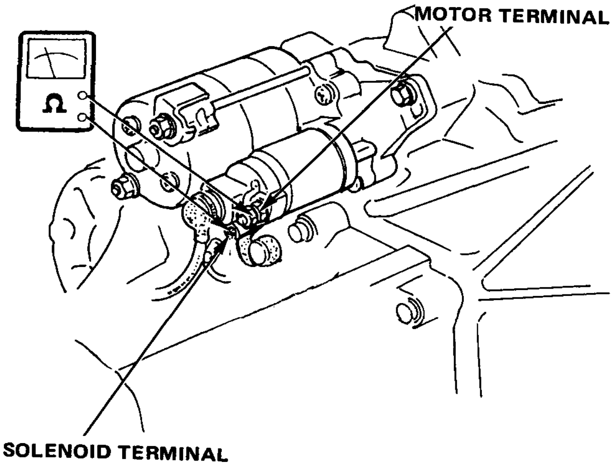
NIPPONDENSO 1.0 kw and 1.4 kw:


SOLENOID TERMINAL
MOTOR TERMINAL

HITACHI 0.8 kw:


SOLENOID TERMINAL
MOTOR TERMINAL

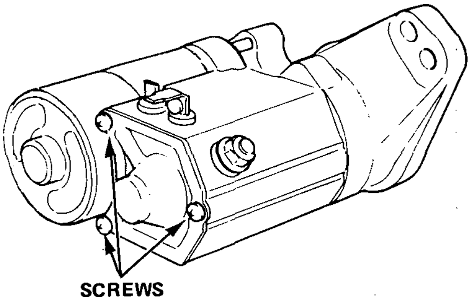
MITSUBA 1.0 kw and 1.4 kw:


MOTOR TERMINAL
SOLENOID TERMINAL

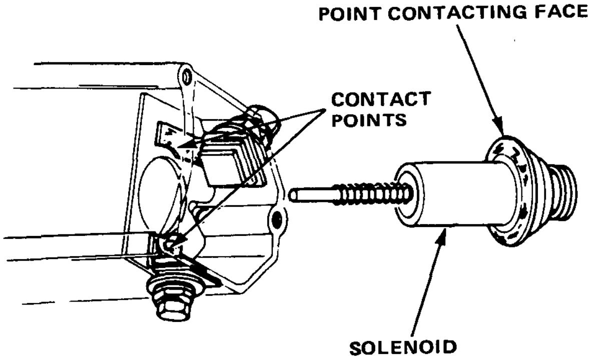
Solenoid Plunger Inspection

NIPPONDENSO 1.0 kw and 1.4 kw

1. Remove three screws from solenoid cover.



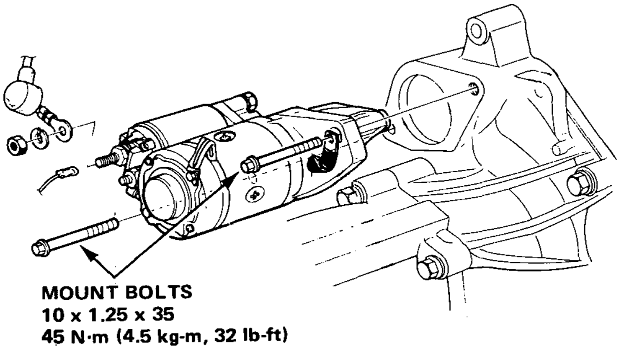
2. Check contact points, and face of starter solenoid plunger for burning, pitting or any other defects. If surfaces are rough, recondition with a strip of #500 or #600 sandpaper.


POINT CONTACTING FACE
CONTACT POINTS
SOLENOID

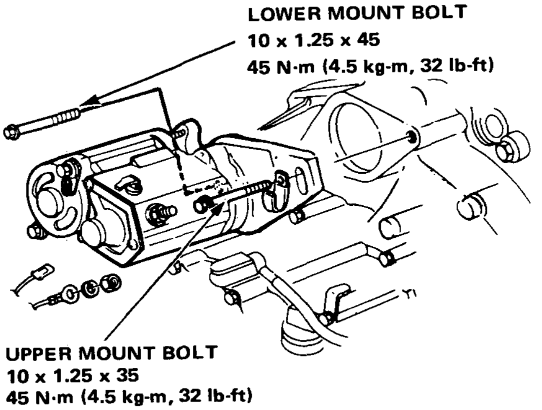
Starter Replacement

1. Disconnect both cables from the battery.
2. Disconnect the starter cable from the terminal on the starter motor.
3. Remove the engine compartment wire harness from the harness clip on the starter motor.
4. Remove two bolts holding starter motor, and remove starter motor.

Direct Type:


MOUNT BOLTS
10 x 1.25 x 35
45 N·m (4.5 kg-m, 32 lb-ft)

Reduction Type:

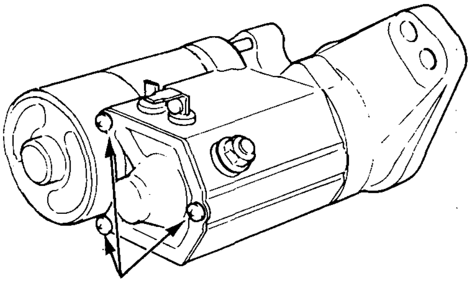

LOWER MOUNT BOLT
10 x 1.25 x 45
45 N·m (4.5 kg-m, 32 lb-ft)
UPPER MOUNT BOLT
10 x 1.25 x 35
45 N·m (4.5 kg-m, 32 lb-ft)

Starting

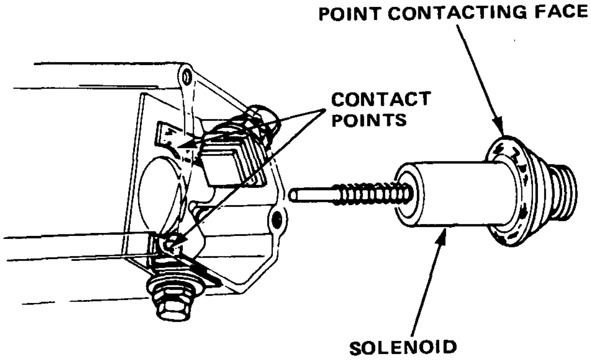
Solenoid Plunger Inspection

NIPPONDENSO 1.0 kw and 1.4 kw

1. Remove three screws from solenoid cover.



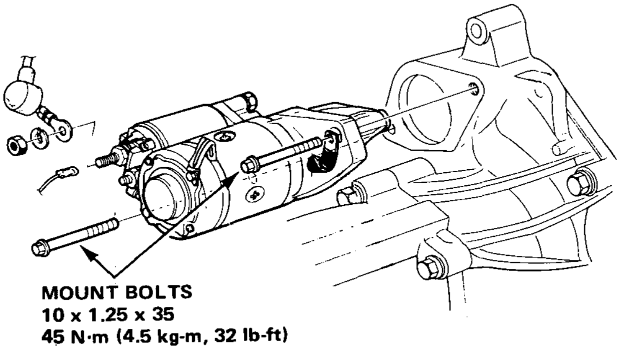
2. Check contact points, and face of starter solenoid plunger for burning, pitting or any other defects. If surfaces are rough, recondition with a strip of #500 or #600 sandpaper.


POINT CONTACTING FACE
CONTACT POINTS
SOLENOID

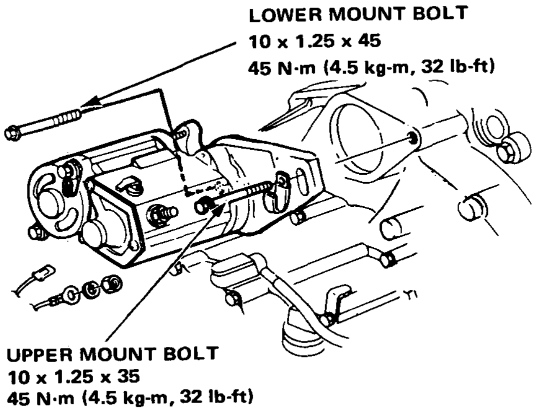
Starter Replacement

1. Disconnect both cables from the battery.
2. Disconnect the starter cable from the terminal on the starter motor.
3. Remove the engine compartment wire harness from the harness clip on the starter motor.
4. Remove two bolts holding starter motor, and remove starter motor.

Direct Type:


MOUNT BOLTS
10 x 1.25 x 35
45 N·m (4.5 kg-m, 32 lb-ft)

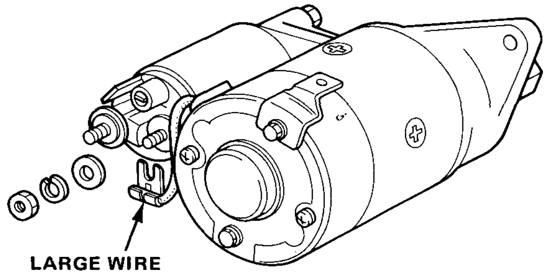
Reduction Type:


LOWER MOUNT BOLT
10 x 1.25 x 45
45 N·m (4.5 kg-m, 32 lb-ft)
UPPER MOUNT BOLT
10 x 1.25 x 35
45 N·m (4.5 kg-m, 32 lb-ft)

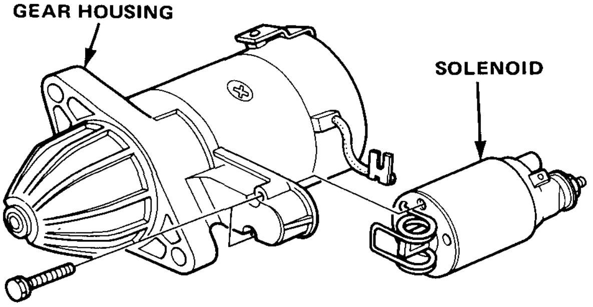
Starter Disassembly

Direct Type:

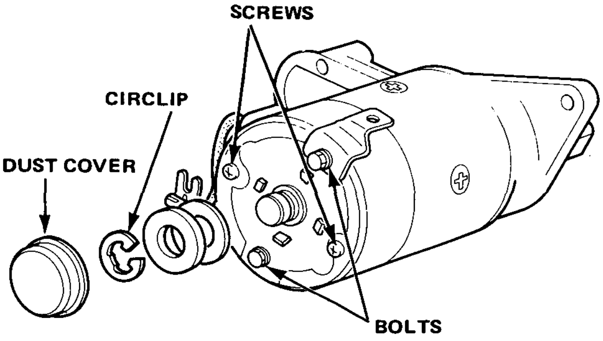
1. Disconnect the large wire that goes from the solenoid to the motor.



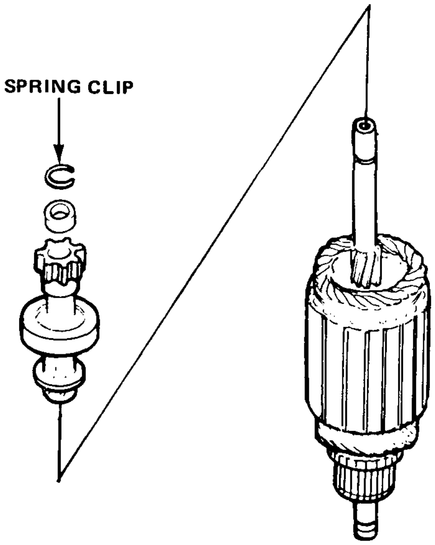
2. Remove the 2 nuts (for NIPPONDENSO), or the 2 screws (for HITACHI), and remove the starter solenoid from the gear housing.


GEAR HOUSING
SOLENOID

3. Remove the dust cover, and the lock plate (for NIPPONDENSO), or the circlip (for HITACHI), then remove the 2 bolts and 2 screws, and take out the armature and brushes.

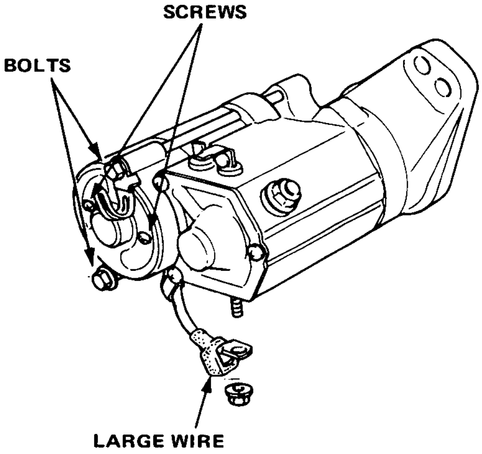

SCREWS
CIRCLIP
DUST COVER
BOLTS

4. Remove the spring clip from the shaft on the armature, then slide the clutch assembly off the shaft.


SPRING CLIP

Reduction Type:

1. Disconnect the large wire that goes from solenoid to the motor.


SCREWS
BOLTS
LARGE WIRE

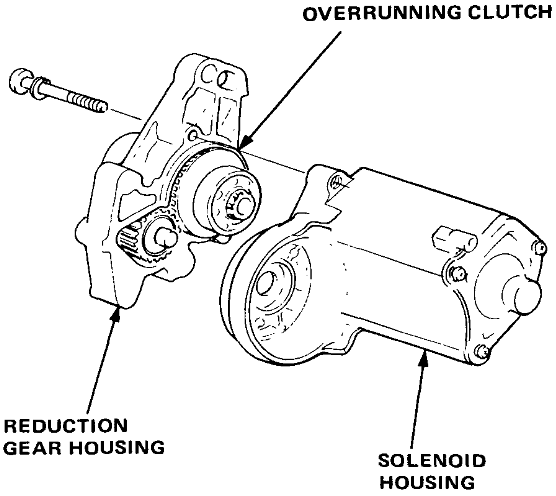
2. Remove the bolts and screws from the end cover. Remove the end cover. Then, take out the armature and brushes.

(cont'd)

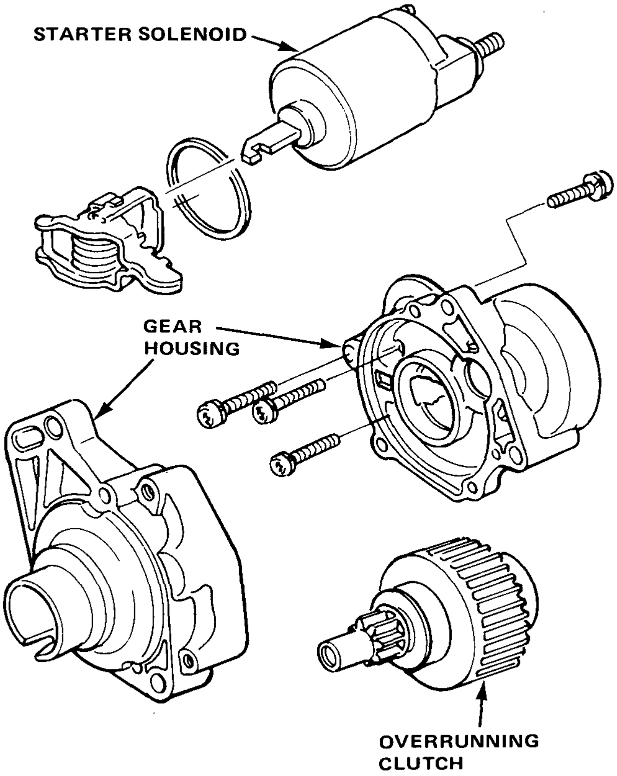
Starter Disassembly (cont'd)

3. Remove the screws from the gear housing, then separate the solenoid and overrunning clutch.

NIPPONDENSO:


OVERRUNNING CLUTCH
REDUCTION GEAR HOUSING
SOLENOID HOUSING

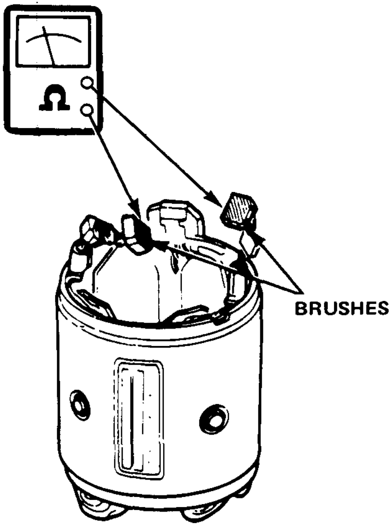
MITSUBA:


STARTER SOLENOID
GEAR HOUSING
OVERRUNNING CLUTCH

Starter Field Winding Test

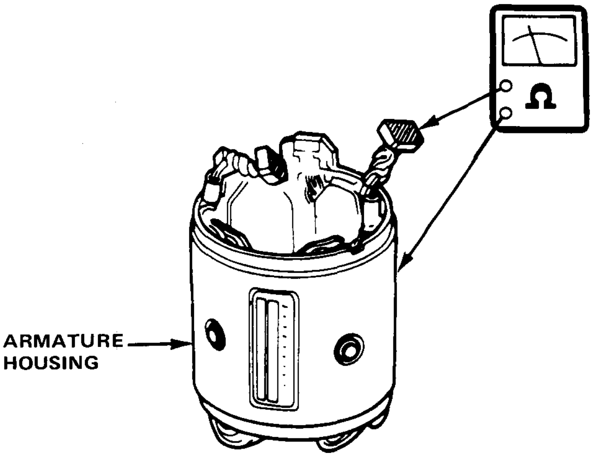
1. Using an ohmmeter, check that continuity exists between brushes.

   If no continuity, replace armature housing.



2. With ohmmeter, check that no continuity exists between field coil and armature housing.

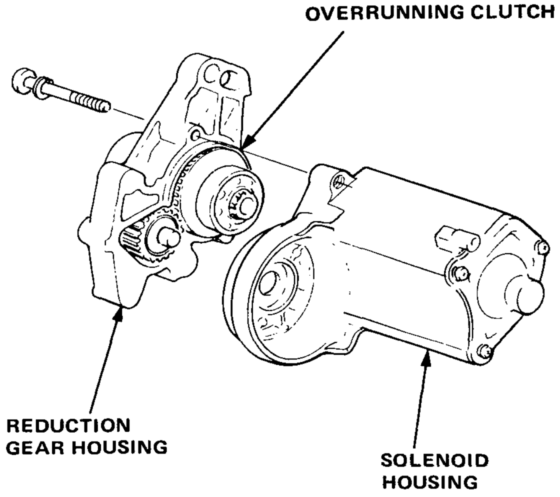
   If continuity exists, replace armature housing.


ARMATURE HOUSING

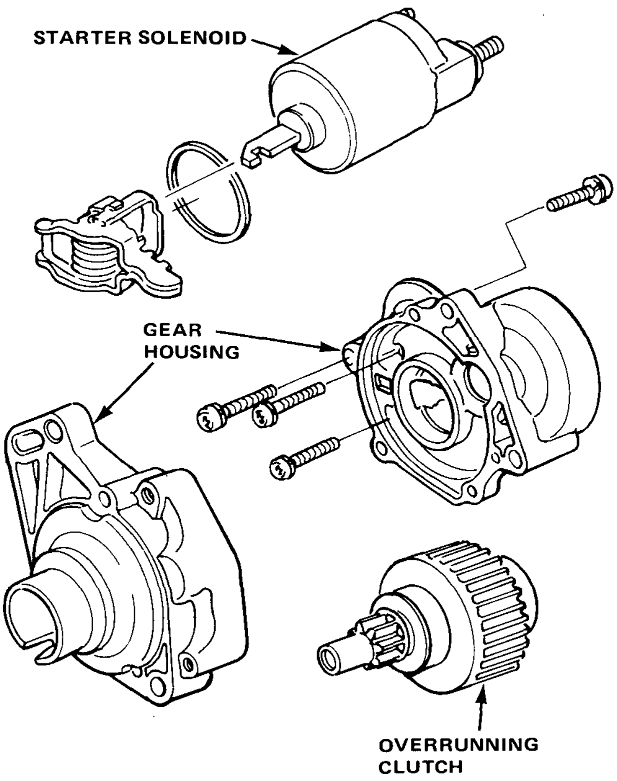
Starter Disassembly (cont'd)

3. Remove the screws from the gear housing, then separate the solenoid and overrunning clutch.

NIPPONDENSO:


OVERRUNNING CLUTCH
REDUCTION GEAR HOUSING
SOLENOID HOUSING

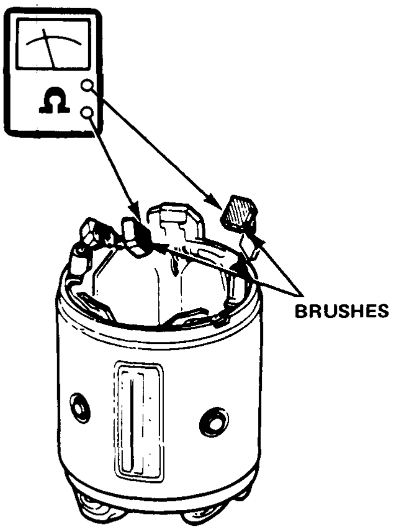
MITSUBA:


STARTER SOLENOID
GEAR HOUSING
OVERRUNNING CLUTCH

Starter Field Winding Test

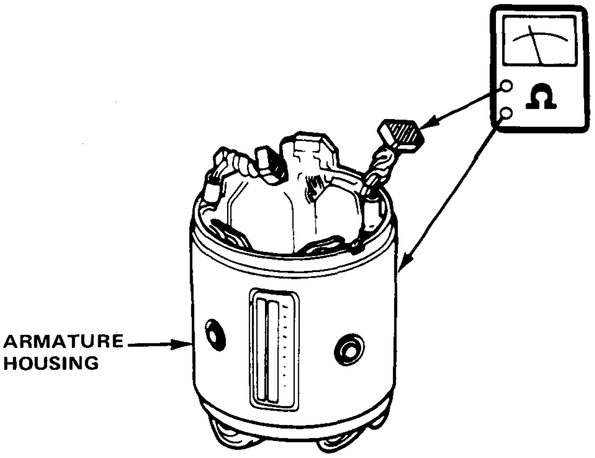
1. Using an ohmmeter, check that continuity exists between brushes.

   If no continuity, replace armature housing.



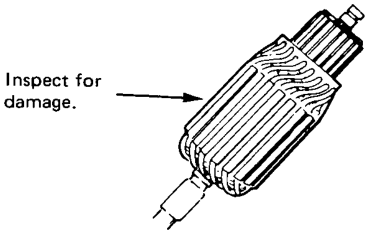
2. With ohmmeter, check that no continuity exists between field coil and armature housing.

   If continuity exists, replace armature housing.


Ω
ARMATURE HOUSING

Armature Inspection and Test

1. Inspect armature for wear or damage due to contact with field coil magnets.



2. A dirty or burnt surface may be resurfaced with emery cloth or lathe within the following specifications.

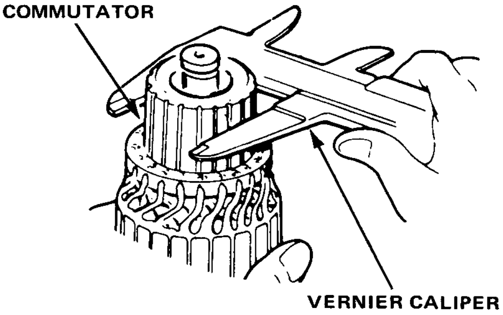
Commutator Service Limits

Runout:

ND (0.8 kW): Less than 0.3 mm (0.012 in.)
HITACHI (0.8 kw): Less than 0.4 mm (0.016 in.)
ND (1.0 kw, 1.4 kw) and MITSUBA (1.0 kw, 1.4 kw): Less than 0.05 mm (0.002 in.)

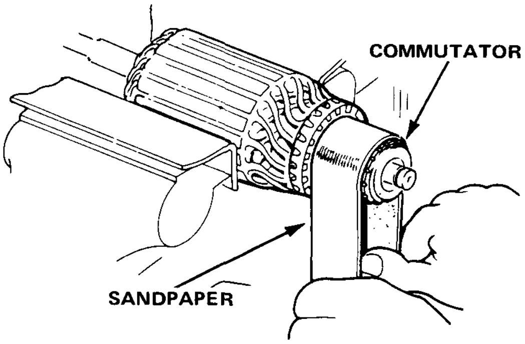
Diameter:

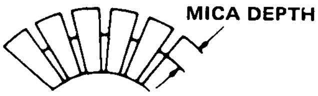
ND (0.8 kw): Not less than 27.0 mm (1.06 in.)
HITACHI (0.8 kw): Not less than 39 mm (1.54 in.)
ND (1.0 kw, 1.4 kw): Not less than 29 mm (1.14 in.)
MITSUBA (1.0 kw, 1.4 kw): Not less than 27.5 mm (1.08 in.)



3. If commutator runout and diameter are within limits, check commutator for damage or for carbon dust or brass chips between segments.

4. If surface is dirty, recondition it with #500 or #600 sandpaper. Then, check mica depth. If necessary, undercut mica with a hacksaw blade to achieve proper depth as shown.





Commutator Mica Depth

Standard (New):

ND: 0.5–0.8 mm (0.020–0.031 in.)
HITACHI: 0.5–0.8 mm (0.020–0.031 in.)
MITSUBA: 0.4–0.5 mm (0.016–0.020 in.)

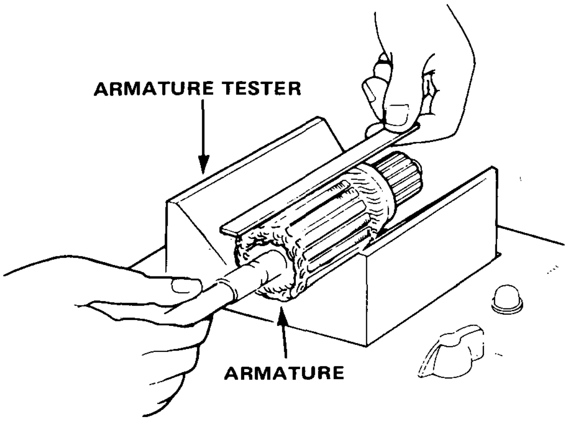
Service Limit:

ND and HITACHI: 0.2 mm (0.008 in.)
MITSUBA: 0.15 mm (0.006 in.)

(cont'd)

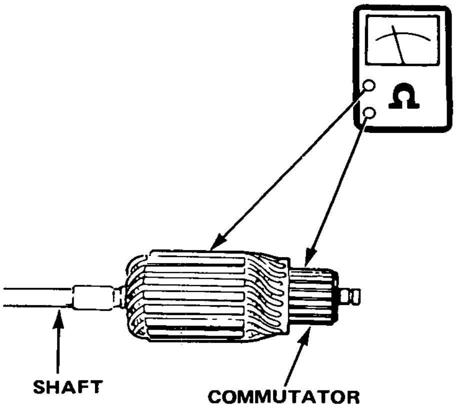
Armature Inspection and Test (cont'd)

5. Place the armature on an armature tester. Hold a hacksaw blade on the armature core.

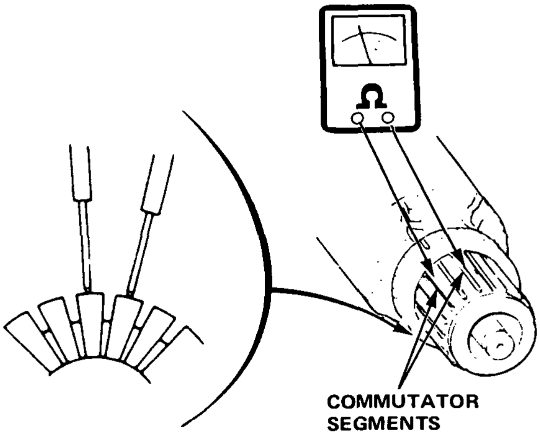

ARMATURE TESTER
ARMATURE

If the blade is attracted to the core or vibrates while core is turned, the armature is shorted. Replace the armature.

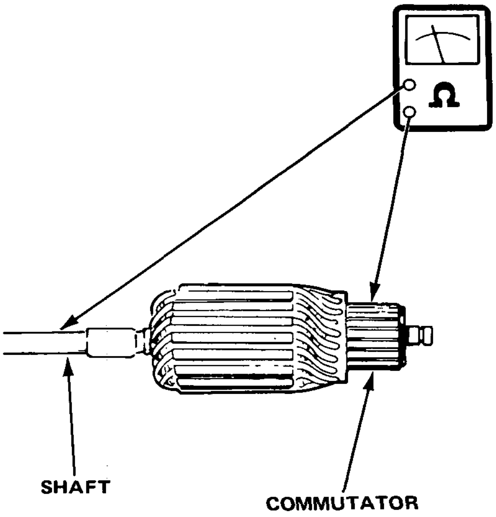
6. With ohmmeter, check that no continuity exists between commutator and armature coil core. If continuity exists, replace armature.


Ω
SHAFT
COMMUTATOR

7. Check for continuity between each segment of the commutator. If an open circuit exists between any segment, replace armature.


Ω
COMMUTATOR SEGMENTS

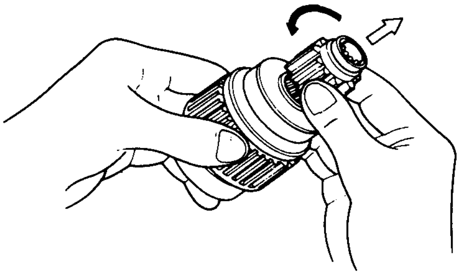
8. Check to see if there is any continuity between the commutator and armature shaft. If there is continuity, replace the armature.


Ω
SHAFT
COMMUTATOR

Overrunning Clutch Check

Move overrunning clutch along shaft.

If it doesn't move freely, or if clutch slips when armature is rotated while holding drive gear, replace clutch assembly.



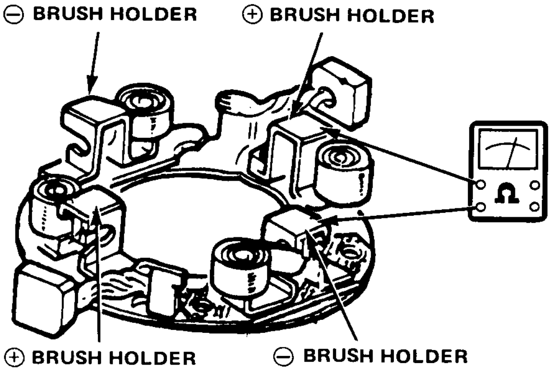
If gear is worn or damaged, replace complete overrunning clutch assembly; the gear is not available separately.

NOTE: Check condition of flywheel or drive plate ring gear if starter drive gear teeth are damaged.

Brush Holder Test

With ohmmeter, check that no continuity exists between positive (+) and negative (–) brush holder.

If continuity exists, replace brush holder assy.



Brush Inspection

Measure brush length. If not within service limit, replace armature-housing and brush holder assembly.

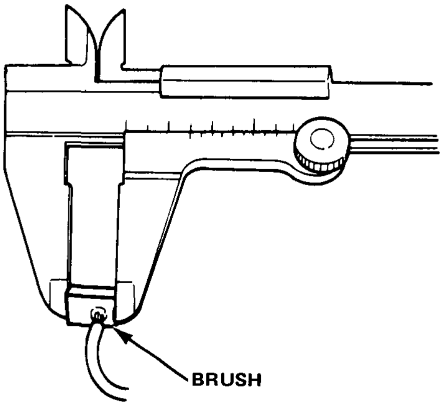
Standard (New):

ND (0.8 kw): 15.5–16.5 mm (0.61–0.65 in.)
HITACHI (0.8 kw) and ND (1.4 kW)
: 14.5–15.5 mm (0.57–0.61 in.)
ND (1.0 kw) : 12.5–13.5mm (0.49–0.53 in.)
MITSUBA (all): 14.3–14.7 mm (0.56–0.58 in.)

Service Limit:

ND (0.8 kw): 10 mm (0.39 in.)
HITACHI (0.8 kw): 11 mm (0.43 in.)
ND (1.0 kw and 1.4 kw): 8.5 mm (0.33 in.)
MITSUBA (all): 9.3 kw (0.37 in.)

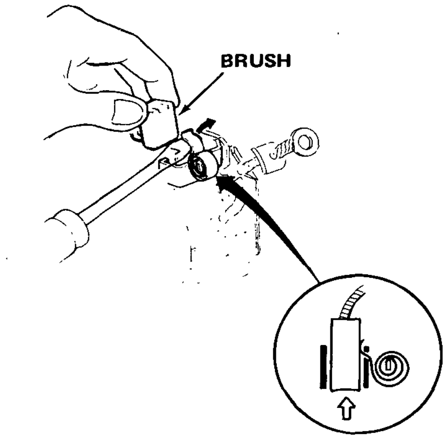
NOTE: To seat new brushes after installing them in their holders, slip a strip #500 or #600 sandpaper, with grit side up, over commutator, and smoothly rotate armature. Under-surface of brushes will be sanded to same contour as commutator.



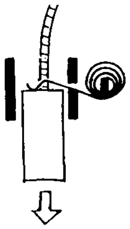
Starter Reassembly

Reassemble the starter in the reverse order of disassembly.

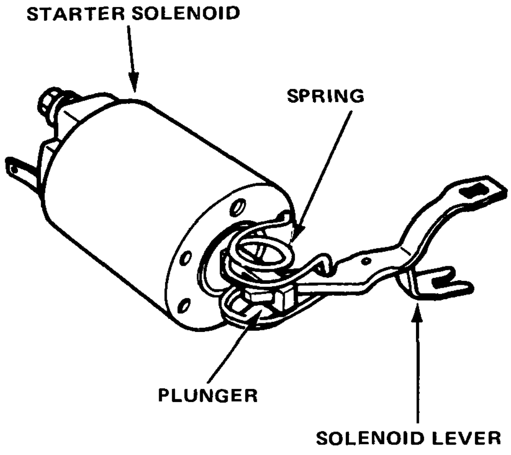
1. Pry back each brush spring with a screwdriver, then position the brush about halfway out of its holder, and release the spring to hold it there.



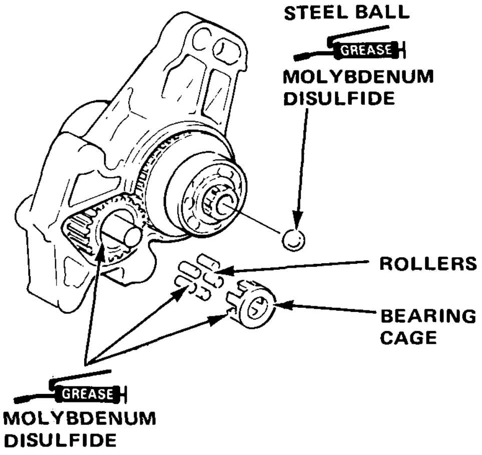
2. Install the armature in the motor housing. Next pry back each brush spring again and push the brush down until it seats against the commutator, then release the spring against the end of the brush.



3. For HITACHI (0.8 kw), install the spring as shown.

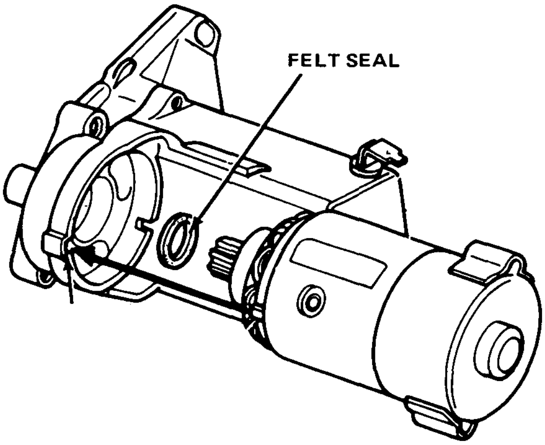

STARTER SOLENOID
SPRING
PLUNGER
SOLENOID LEVER

4. For NIPPONDENSO (1.0 kw and 1.4 kw), install the overrunning clutch and idler gear, then the rollers and cage.

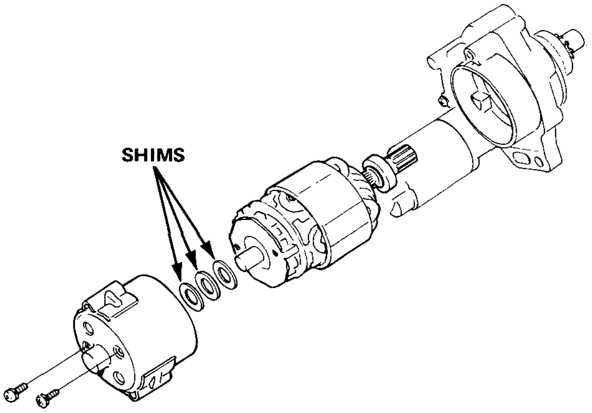

STEEL BALL
GREASE
MOLYBDENUM DISULFIDE
ROLLERS
BEARING CAGE
GREASE
MOLYBDENUM DISULFIDE

5. When you assemble the motor and solenoid, don't forget to install the felt seal (ND) or shims (MITSUBA).

NIPPONDENSO (1.0 kw):

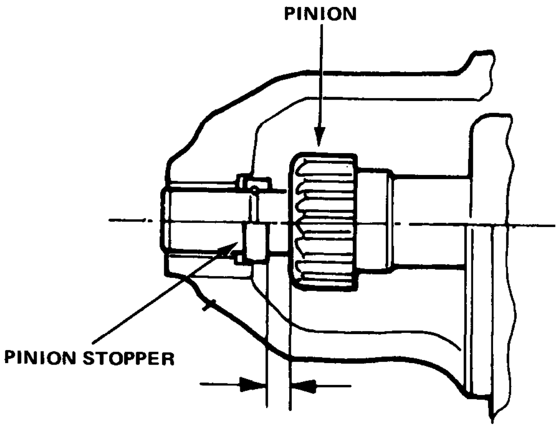


MITSUBA (1.0 kw):



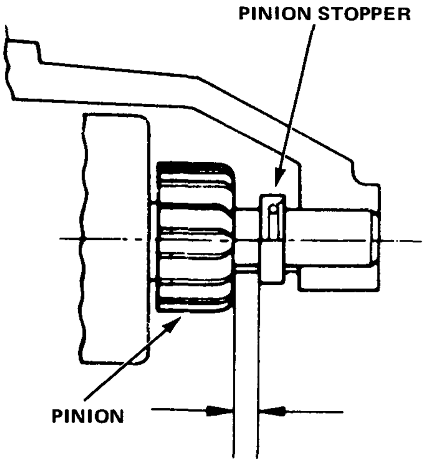
6. After assembling, measure clearance between pinion stopper and pinion with clutch pushed out by starter solenoid.

NIPPONDENSO (0.8 kw):


PINION
PINION STOPPER

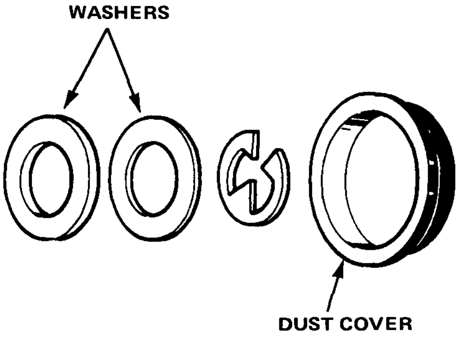
Specified Clearance: 0.1–4.0 mm (0.004–0.157 in.)

HITACHI (0.8 kw):


PINION STOPPER
PINION

Specified Clearance: 0.3–2.5 mm (0.012–0.098 in.)

If out of specification, adjust by changing washer thickness.


WASHERS
DUST COVER